ANDROID
ADVISOR

Amazon's £49 tablet
REVIEWED

PLUS:
Get more from Android - best new features in Marshmallow

Contents

Welcome...

Kids and adults all over the country are next week going to be waking up to Amazon's cheapest ever Fire tablet under their Christmas tree. With a price tag of just £49 (and reduced to £35 toward the end of November thanks to a Black Friday deal), this is the very definition of a budget Android tablet. But while it's cheap, it's actually not at all bad – if you can live without Google's apps. Read our full verdict on page 40.

At the other end of the scale, the very best phones and tablets will be soon to benefit from the latest Android operating system – until now Marshmallow has been a luxury reserved only for Google's Nexus devices. We walk you through this new and exciting software from page 22, with some of our best tips and tricks for Marshmallow.

A new year is upon us, and there's so much to look forward to. On page 11, we look at some of the new features we can expect to find in Android devices in 2016. We also explain the differences between the Snapdragon processors that will power many of these devices from page 17.

Plus, turn to page 48 onward for reviews of some of the best Android tech to grace us in the latter part of 2015, including the Nexus 5X and 6P, Moto X Force, Galaxy Edge+ and OnePlus X.

As always, we hope you've enjoyed this issue of Android Advisor. Feel free to send us your feedback via **facebook.com/AndroidAdvisorUK** or email **marie_brewis@idg.co.uk**.

Opinion:
Why we need Nexus phones more than ever

Google leads the way with its Android handsets

The Nexus 6P and 5X (see pages 48 and 58) could be the perfect Android phones we've been pining after for years. Great build quality, a top-flight camera, rapid updates, all wrapped together with an unsullied version of Android.

It's especially that last item that phone manufacturers keep fumbling. You can get an excellent camera with a new Samsung Galaxy S6 or the LG G4. HTC's all-metal One series has always been a leader in the looks department (see page 90). And the Moto X lets you build a device to your

liking in a near-stock Android package (Though how often it stays up to date is another matter.)

They are all good phones. But all are susceptible in one form or another to a list of grievances. Slow updates. Preinstalled apps you can't get eliminate (from the device maker and carrier). Interface tweaks that merely change, instead of improve, the Android experience.

These continual problems have convinced me that despite what others may say, we desperately need Nexus phones to lead the way. I'm more optimistic than ever with what Google produced in the Nexus 6P and 5X. Here's why it still needs to teach everyone about how it's supposed to be done.

A Touch of the Wiz

We've railed plenty of times here about third-party software. Samsung's TouchWiz and the custom interfaces from LG and HTC are easy targets. But why is that one of our constant gripes?

Often they don't add any value. Most of these custom user interfaces unnecessarily change the configuration of the settings, home screen, and other features. Yes, Android is all about openness and customisation, and giving everyone the freedom to do this. But they should actually make things better.

To be fair, sometimes they do. Samsung adds some useful tweaks to TouchWiz. For example, there's a handy checkbox in the drop-down menu to turn on auto-brightness. You can also customise which settings are at the ready from this spot.

TouchWiz also lets you uninstall an app from the home screen – something Android finally added with Marshmallow. Phone makers can, and should, add

these kinds of things if they make the experience better. But they don't need to mess with the way buttons and switches look, or turn toggles into checkboxes just because they can. There's no need to switch up the fonts and colours or copy iPhone features like rounded app icons and a Parallax wallpaper (looking at you, Samsung).
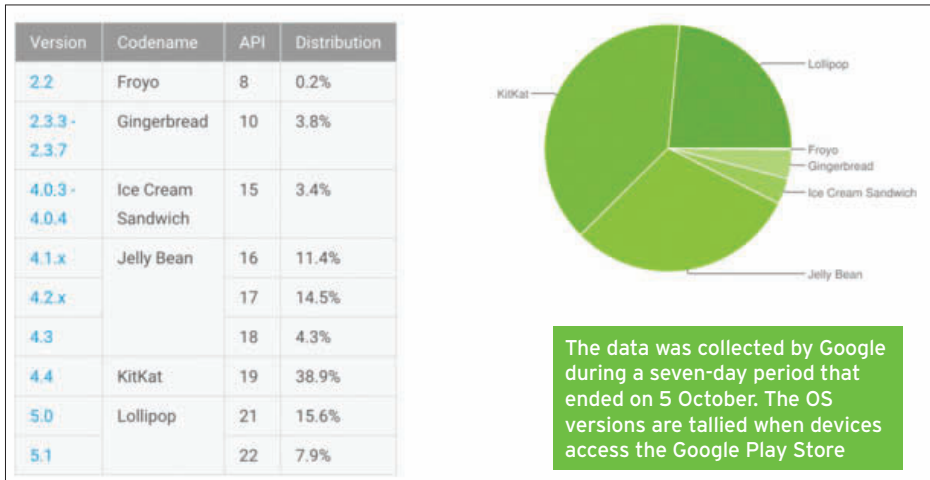
Bloatware: still nonsense

While the bloatware situation has somewhat improved, it's still rather terrible. Take this example: on the Galaxy Note 5, you can't install Word, Excel or PowerPoint from the Play Store. You have to get them from Samsung's own Galaxy Apps market.

It's one of those partnerships that is great for Samsung and Microsoft, but terrible for you. That's why when I first fired up my Note 5, I had to constantly tell OneDrive to stop pestering me to back up my photos. Then I had to get rid of Flipboard Briefing, which takes over an entire home screen. It's ridiculous that the standard procedure for setting up a new Android phone is to spend an hour debloating all the apps and services you don't want. Yes, Apple includes apps you probably don't want, but at least all you have to do is drag those into a folder and they're out of your way.

This is another place where OEMs need to look to Google – the company recently sliced out Google+, Play Books and Newsstand from the list of required apps. We need fewer preinstalled apps, not more.

At least Motorola has distinguished itself by sticking to the stock Android interface, and making its phones available directly, without carrier bloat (or price overhead). But the yin to that yang has been a

Version	Codename	API	Distribution
2.2	Froyo	8	0.2%
2.3.3 - 2.3.7	Gingerbread	10	3.8%
4.0.3 - 4.0.4	Ice Cream Sandwich	15	3.4%
4.1.x	Jelly Bean	16	11.4%
4.2.x		17	14.5%
4.3		18	4.3%
4.4	KitKat	19	38.9%
5.0	Lollipop	21	15.6%
5.1		22	7.9%

The data was collected by Google during a seven-day period that ended on 5 October. The OS versions are tallied when devices access the Google Play Store

string of bad cameras, with the exception being the good-but-not-great Moto X Style. We've said it plenty of times: leave Android alone.

Update madness

The fatal flaw of the Android ecosystem is the unwillingness of OEMs and carriers to deliver timely Android updates. Lollipop has been out for a year, but it's only on a quarter of the Android phones worldwide. The situation is better with flagship devices, as most have been updated to Lollipop. But it will be several weeks, if not months, before Marshmallow comes to your non-Nexus phone.

It's frustrations like this that send people back to the iPhone. When Apple pushes out an iOS update, it's available for your device that day. Yes, Google has wisely its apps to the Play Store and a ton of features to Google Play Services, which it can directly control and easily update. But key functions come only in new OS updates. And who knows

when you'll get one. The security situation is also still shaky. A recent study from Cambridge points out that almost 90 percent of Android phones are vulnerable, with the update bottleneck of OEMs and carriers chiefly to blame. This is another case where Google needs to lead the way at shoring up your phone's defences. Google has pledged monthly security updates to its Nexus phones, which are sold unlocked without carrier interference. If this model proves successful, it could further nudge the industry in the right direction.

A great camera and build quality are a must

Last year's Nexus 6 was a disappointment for its excessive size and bad camera. That's a huge pain point for buyers: the camera is usually at the top of the list of wants when I talk to people about smartphones. I have two family members who just

switched over to the iPhone for that reason alone. Even though the Galaxy S6 and its siblings have a camera that's arguably as good or better than the iPhone 6s, it's the perception of the iPhone's photographic superiority that resonates with buyers.

The same goes with fingerprint scanners. When people see Touch ID for the first time, they're wowed. Fingerprint scanners are on Samsung's top phones, but we are only finally getting native support in Android Marshmallow. By all accounts Nexus Imprint is lightning fast, which should serve as a model for how this feature out to be implemented. That's especially critical with the reboot of Google Wallet to Android Pay.

The only hardware feature Nexus phones are lacking is wireless charging. That's not on the iPhone yet, so outside of Samsung enthusiasts, it's probably not entered the public consciousness as a must-have. But a great camera is. Fingerprint sensors should be there soon. Nexus phones must be leaders in implementing core hardware components, but quality matters. They have to look and feel good. Pickup trucks are useful, but everyone gets excited about sports cars and performance vehicles.

The right performance for the price

Google really seems to have nailed the price-to-performance ratio this time around. The Nexus 5X is a bargain at £339, especially if it turned out to be as good a phone as the original Nexus 5.

And the 6P is well worth the £449. The Nexus brand needs to get back to what it stood for in the past: good hardware, timely Android updates, and a competitive price. The interface and feature set of

stock Android makes it more competitive than ever. Google must show others the way.

Besides, there are plenty of cheap phones out there, like the rather good Moto G. And Samsung is in iPhone territory with its Galaxy S6 and Note line that starts at £600. Nexus should still occupy that middle ground – excellent, stock Android phones at a price that won't break the bank.

Also, with Nexus Protect, Google is catching up to Apple when it comes to customer service. The big advantage of an iPhone is that you can walk into an Apple Store and get support. If more people feel like there's help on the line, buying a phone without a bricks-and-mortar store might not be so scary.

Yes, we still need Nexus

Nobody is hitting all of these points except for the Nexus line. Motorola comes close, but with the exception of the Moto X Style, Motorola phones have had a consistently bad camera. And the Style's lack of a fingerprint reader makes using Android Pay a pain. Now Motorola is having issues with software updates, to boot (the company ditched out on any more updates for the 2015 Moto E, which is only nine months old).

Not only do we need the Nexus line more than ever, but we need it to be better than ever. We shouldn't have to give up precious features or great camera quality just to get a clean interface and timely software updates. Google must make Nexus the benchmark for how Android phones should be, the 'aspirational' brand that Pixel is for the Chrome operating system, because pure Android is now good enough to be more than just for developers.

News:
New features coming to phones and tablets in 2016

Why we're excited about Qualcomm's Snapdragon 820 chip

Although details about the chip have been floating around the web for a while, Qualcomm has now revealed exactly what advantages and upgrades it will bring. A company spokesperson told us: "The Snapdragon 820 has been holistically designed around enriching visual quality and audio clarity, as well as developing more intuitive ways to interact with devices, to generate deeply immersive experiences."

Specifications

Let's break down the four main components of the Snapdragon 820 which are the CPU, GPU, DSP and LTE modem.

Kyro CPU

An important part of any SoC (system-on-a-chip), the Kryo CPU inside the 820 will bring up to twice the performance and double the power efficiency when compared to previous generations. The 64-bit-capable custom CPU is also the first to be made with a 14nm FinFET manufacturing process.

Adreno 530 GPU

The Adreno 530 offers 40 percent better performance and power efficiency compared to previous generations.

Hexagon 680 DSP

The Hexagon 680 DPS (digital signal processor) is for tasks that can be done faster than the CPU and with less power. For simple things such as playing an MP3, the 680 can double playback time. Qualcomm claims that it can be up to three times faster than the CPU for certain tasks and 10 times more efficient.

X12 LTE

Last but not least is the X12 LTE modem, which provides 33 percent improved performance and 15 percent better power efficiency. Users will be able to, in theory, get 600Mb/s download speeds and 150Mb/s upload speeds thanks to Cat 12 – that's double if you've got a phone with Cat 6 in your pocket. It's also the first to support unlicensed

spectrum bands to help with data capacity on networks (LTE-U). There's also 802.11ad for faster line-of-sight Wi-Fi, 11ac MU-MIMO (multi-user), Smart Wi-Fi Calling.

New features

Qualcomm says the processor's connectivity features are unmatched by any other mobile SoC, so let's look at them to see what you're 2016 phone will be capable of. Note that these are just base features of the 820 and some are optional, so manufacturing partners will choose which ones they want to invest time and money in.

Battery life and overheating

These are probably two of the big questions on your lips right now when it comes to the Snapdragon 820. Will it provide better battery life and will it overheat?
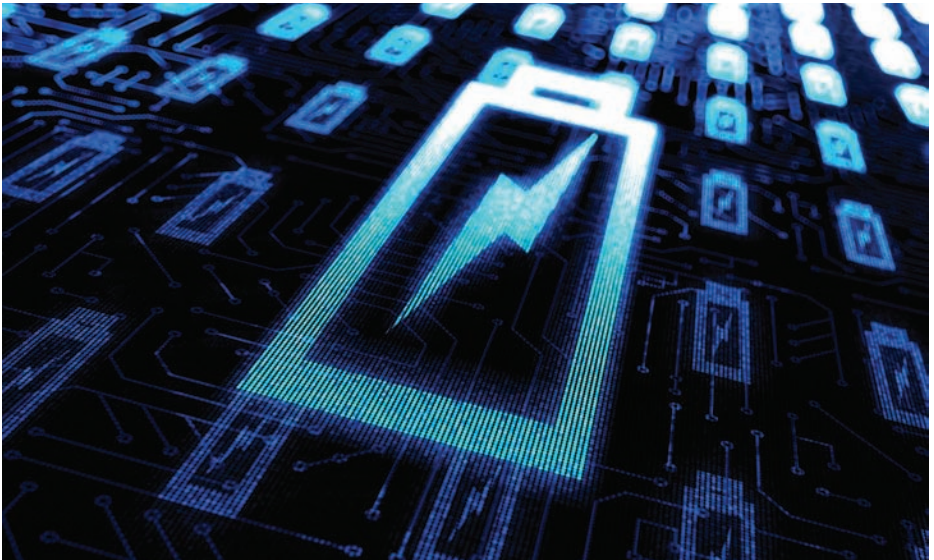
According to Qualcomm, the news is good. Since the 820 is more power efficient, the battery life will be increased, while producing less heat. In terms of numbers, the 820 consumes 30 percent less power compared with the 810, which has suffered from some heat issues in a number of phones.

Quick Charge 3.0
Quick Charge 3.0 is designed to be four times faster than normal charging. Compared to previous versions, it's twice as fast as the original and 38 percent more efficient than Quick Charge 2.0.

Qualcomm says it "employs Intelligent Negotiation for Optimum Voltage (INOV), an algorithm that allows your portable device to determine what power level to request at any point in time, enabling optimum power transfer while maximising efficiency."

Visual processing
With phones now offering resolutions up to 4K, visuals are more important than ever. Qualcomm says you can expect photorealistic video graphics thanks to the combined efforts of the Kryo CPU and Adreno GPU. It does this by implementing things such as dynamic reflections, HDR rendering and temporal anti-aliasing.

Snapdragon Scene Detect
This is an interesting technology that Qualcomm says will intelligently work out what you're taking a photo of, detecting things such as people, sky, sand, and so on. The system can be trained to recognise different things, even a type of food. To do this, it uses the Zeroth neural processing platform and the

heterogeneous cores. The fact that it can detect different image types and scenes means the photos can be automatically organised into those different categories, making your life a bit easier.

Snapdragon Low Light Vision
Low light is where everyone is striving to make improvements and Qualcomm's answer is adaptive brightness and noise reduction. It says the Low Light Vision system can compensate for HDR scene and motion artefacts usually created by camera or subject movement. The firm promises DSLR-like results, without needing kit like a 'proper' lens. Bold claims, then.

Imaging
Intelligent camcorder
Also related to Scene Detect, the Intelligent Camcorder has the ability to recognise and track

multiple objects using 'computer vision'. Qualcomm even says it will be able to pick out your child in order to focus on them instead of anyone else, even across a football field full of kids.

Immersive Audio
Audio is an area often overlooked, but the Snapdragon 820 aims to offer a better experience producing what it calls a "centre of sound that's faithfully sharp and immersive, unmatched on other audio platforms". Immersive 3D sound is also touted for when you're wearing headphones.

Smart Protect
This looks for bad behaviour in software to stop malware before a security vendor has identified it. Qualcomm has taught the Snapdragon 820 what to look out for.

Feature:
Qualcomm's line-up of Snapdragon processors

We compare the chips in the Snapdragon range

I f you've got a smartphone or tablet kicking around there's a good chance it has a Qualcomm Snapdragon chip inside. But what's the difference between the 800, 600, 400 and 200 processors?

Like traditional PCs and laptops, the processor is the digitally beating heart of mobile devices. "Each tier of Snapdragon processors is designed to give mobile users a perfect balance of power and efficiency. The result is a broad spectrum of mobile technology that is innovative enough to carry the name Snapdragon," says Qualcomm.

Read on to find out what Qualcomm's range of Snapdragon processors compare and offer. Plus find out which devices they are used in.

Qualcomm Snapdragon 800 series

The Snapdragon 800 series is the top tier of Qualcomm's processors – in effect the flagship offering with the best performance and feature set. You'll find these processors in the more expensive phones and tablets on the market such as HTC One M9 and Sony Xperia Z5.

Qualcomm says: "Designed to enable premium tier mobile user experiences, the Snapdragon 800 series processors expand the possibilities of connected computing and empower manufacturers to deliver leading mobile experiences."

The 800 tier is at least quad-core, has at least Adreno 330 graphics and at least LPDDR3 memory.

Although some phones are still arriving to market with them, the Snapdragon 800, 801 and 805 are fairly old now and don't support 64-bit processing. While the Snapdragon 805 is rare (namely in the Nexus 6) and the 801 was the main flagship

chip for 2014 flagship devices it's in devices such as the OnePlus X which has just launched.

Higher up the range and more recent is the Snapdragon 808 and 810. You'll find the former in phones like the LG G4 and the latter in many devices. Qualcomm has experienced some overheating issues with the 810 prompting a v2.1 edition as found in the OnePlus 2.

The Snapdragon 820 is the flagship processor for 2016 so we could see devices with it as early as CES in January. It offers twice the performance as previous generations and with better power efficiency, plus the Adreno 530 GPU, Hexagon 680 DSP and X12 LTE modem.

Qualcomm Snapdragon 600 series

Covering the mid-range is the Snapdragon 600 tier which is, as you might expect, above the 400 tier but below the 800 tier.

"Offering superior mobile user experiences ranging from 4K Ultra HD video capture and playback, advanced camera, multichannel audio and expanded connectivity options, Snapdragon 600 series processors are a natural fit for powerful and beautifully designed smartphones and tablets," explains Qualcomm.

With the Snapdragon 600 out of date and the 602A designed for the automotive industry, this leaves five other chips in the range with a slightly more confusing naming structure compared to the 800 range.

The Snapdragon 610, 615 and 616 are all chips from 2014 with the latter two being Qualcomm's first octa-core SoCs (system on a chip). You'll find the 615 in phones such as the HTC Desire 820 and Sony Xperia M4 Aqua. Meanwhile, the Snapdragon 617, 618 and 620 are all 2015 chips with features such as the X8 LTE modem. The 617 added Quick Charging 3.0 while the other two offer Adreno 510 graphics and are either hexa- or octa-core. HTC's recently launched One A9 features the Snapdragon 617.

Qualcomm Snapdragon 400 series

Supplying entry-level devices is the Snapdragon 400 range. You'll mainly find these processors in budget smartphones and smartwatches, too.

Qualcomm said: "Snapdragon 400 series processors are designed to support the most popular smartphone features: comprehensive internet connections with 4G LTE-Advanced, cutting-edge camera technologies, Full HD displays, and high-fidelity audio."

Although it's been around for a long while, the Snapdragon 400 is still popping up in a number of devices – notably Android Wear smartwatches including the Huawei Watch and Motorola Moto 360 (2nd gen). There are various iterations offering up to quad-core with Adreno 305 graphics.

The Snapdragon 410 was Qualcomm's first 64-bit mobile SoC and features an Adreno
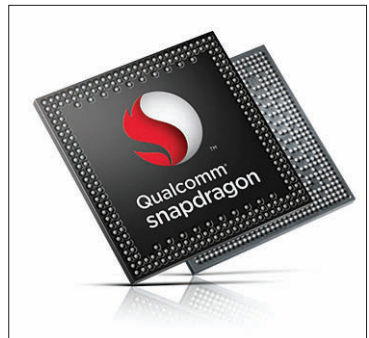
306 GPU, Cat 4 4G LTE and up to 13Mp cameras. This chip is found in devices including the Samsung Galaxy A3 and Motorola Moto G (3rd gen).

Announced early in 2015, the Snapdragon 415 is octa-core SoCs featuring eight ARM Cortex-A53 processor cores and Adreno 405 graphics. However, we've not seen it in any devices we've reviewed.

The most recent is the Snapdragon 430 which is also octa-core and features Quick Charge 3.0, Adreno 505 and the X6 LTE modem. Sampling availability is scheduled for 2016 so you can expect devices to arrive next year with this chip.

Qualcomm Snapdragon 200 series

The low-end 200 tier of Snapdragon processor is 'designed to make exceptional performance more accessible than ever'.

Starting with the Snapdragon 200, it's a processor for even cheaper versions of budget phones such as the Moto E. You'll also find it in phones such as the Lumia 535 and Sony Xperia E1. The second generation Moto E also has it for the 3G-only model since the chip doesn't support 4G. The Snapdragon 208 is designed to add

better 3G connectivity but isn't found in any devices we've seen.

The Snapdragon 210 namely brings 4G LTE (Cat 4) but is only present in a handful of devices such as the HTC Desire 520 and Microsoft Lumia 550. Set to arrive in devices next year, the Snapdragon 212 bumps the processor speed up 1.3GHz.

Feature:
Android Marshmallow tips and tricks

Get more from Google's latest mobile operating system

A ndroid 6.0 Marshmallow is here, and if you're lucky enough to have it on your phone, you've probably already spent plenty of time poking around and exploring every nook and cranny of Google's latest mobile OS. To help you out, though, we've complied this list of 10 tips for getting more out of Marshmallow.

1. Take control of notifications with Marshmallow's Do not disturb feature

Marshmallow further bolsters Android's existing notification muting features thanks to an enhanced Do Not Disturb feature.

In Android 5.0 Lollipop, Google added some new features that made it easier to silence unwanted notifications while you're asleep or at work, for example. Android 6.0 Marshmallow builds on Lollipop's Priority Notifications and Downtime features, and gives these notification management tools a new umbrella name: Do Not Disturb. Let's take a look at what these expanded notification-silencing features can do.

Turn on Do Not Disturb at any time

Marshmallow lets you mute notifications at any time with just a tap. Pull down the Notifications drawer, then swipe down again to get to the Quick Settings tray. Tap Do not disturb, then choose the sorts of alerts you want to receive while do not disturb is active. You can choose to continue receiving notifications for alarms or priority notifications, or you can opt for total silence.

Finally, choose whether you want to have Do Not Disturb stay on until you say otherwise (Until you turn this off) or for a set period of time (For one hour, by default). If you choose the latter option, use the '+' and '-' buttons to set how long you want Do Not Disturb to be active.

Priority interruptions

Android Lollipop introduced the concept of 'priority notifications'. These notifications rise to the top

of the notifications screen, and you can choose to continue receiving auditory or vibration alerts for these notifications even when you have all other notifications muted.

To choose which notifications you'd like to treat as priority notifications, head on over to your phone's Settings app, then tap Sound and notification – a one-stop shop of sorts for all things related to notifications and alert sounds. Next, tap Do not disturb, then tap Priority only allows. From this screen, you can choose to limit the sorts of notifications you'll be alerted to.

First, choose whether you want to give priority to notifications for reminders and calendar events. (The option to silence alarms is greyed out for whatever reason.)

Next, review the priority notifications options for Messages and Phone calls. Set your priority preferences by tapping either 'Messages' or 'Calls'. When you do, a menu pops open with four options:

• **From anyone:** This option allows all notifications through, regardless of who is trying to reach you.
• **From contacts only:** Notifications alerting you to calls or messages from people listed in your Contacts app will get priority status.
• **From starred contacts only:** This setting gives priority to notifications that pertain only to those marked as favourites in the Contacts app. To mark someone as a favourite, go to the Contacts app, tap that person's name, then tap the star icon in the upper-right corner.
• **None:** No call or message notifications will receive priority status.
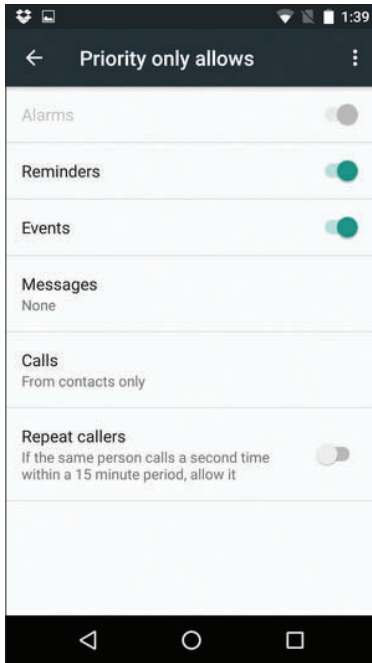
With priority notifications, you can choose to let certain notifications through while Do Not Disturb is turned on
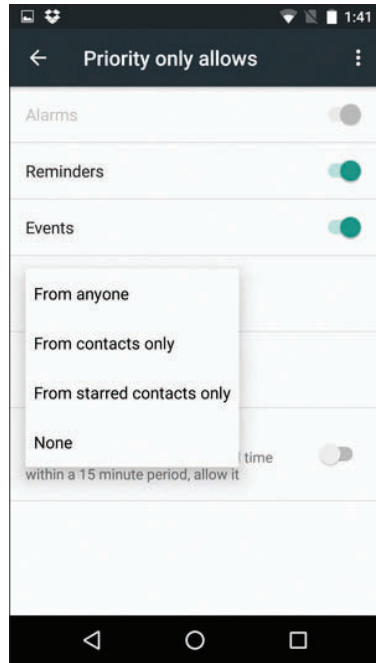
You can continue receiving phone call and message notifications from some people, even when Do Not Disturb is turned on

Once you choose your desired settings for calls and messages, choose whether you want notifications from repeat callers to gain priority by toggling the 'Repeat callers' slider to the On position. When this is switched on, you'll receive a notification if someone calls you a second time within a 15-minute period, regardless of whether notifications from that person receive priority status.

Downtime
If you want to allow all notification alerts through most of the time, but want to limit alerts during

certain hours, Downtime is for you. During Downtime hours, you'll only be alerted to priority interruptions; your phone will receive all other notifications silently. They'll be there, waiting for you when you wake up, but your phone will not light up the screen, make a noise, or vibrate.

If you want to use Downtime, you need to choose the days of the week and times you want to set as notification quiet hours. Go to Settings > Sound and notification > Do not disturb > Automatic rules. Android Marshmallow provides presets you can use for weekends and weeknights, and a preset option for managing notifications during calendar events.

Start by tapping any of these three options – for the sake of this tutorial, we'll tap Weekend. Next, toggle the on/off switch to the 'on' position. Select the Days you want the preset to apply to, then set a Start time and End time. Finally, select the kinds of alerts you'd like to allow through. You can choose between Alarms only (allows alarms to sound but silences all other notifications), Priority only (allows only priority notifications), or Total silence (which mutes all notifications).

Take a peek at the Event preset as well, and choose whether you want to silence notifications from going off during events listed on your calendar – useful for preventing your phone from going off in the middle of a staff meetings. Switch the rule on, select the calendar and reply status you want it to use, then choose what kind of notifications you want to receive.

You can create additional rules for notifications as well. For example, you can set one to allow only priority notifications while you're at the office. Tap
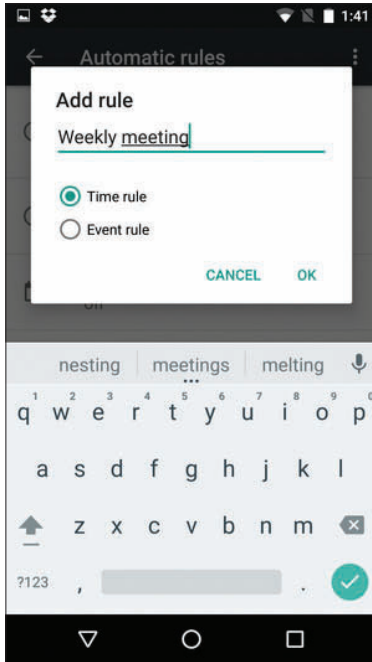
You can set up your own rules if you want. This might come in handy if you don't want to be disturbed while you're at work
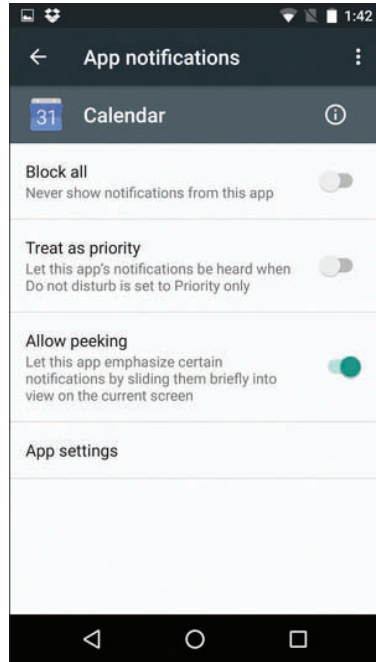
You can bestow priority status on to notifications from any app. You can also silence all notifications from a given app

Add rule, enter a name, choose whether you want a Time rule (you enter specific times and dates) or an Event rule (one based on calendar events), then tap OK. At this point, you can set up your new rule. You can delete a rule by tapping its name, then tapping the trash can icon in the upper right corner. You can also choose to temporarily stop observing a rule by toggling the on/off switch to 'off'.

App notifications
Android Marshmallow, like Lollipop before it, also allows you to choose to block apps from sending

notifications entirely, or to mark notifications from certain apps as priority notifications.

First, head back to Settings > Sound & notification. Next, scroll to the bottom and tap App notifications, then tap on the app for which you want to adjust notification settings. Toggle the Block all slider to the 'on' position to stop receiving notifications from that app. Toggle the Treat as Priority slider to 'on' if you want notifications from that app to be considered Priority notifications.

While you're here, you can toggle whether you want to view the larger 'heads-up' notifications for the app in question using the Allow peeking setting.

You can also get to this screen any time an app's notification appears by pressing and holding on the notification until you see the little info button (it looks like a lowercase 'i' in a circle) appear. Tap on that, and you'll go straight to the notification settings for that app.

Once you're done, exit the Settings app and enjoy your newfound mastery of Android Marshmallow's notification system.

2. How to get Android Marshmallow's hidden file manager

Did you know you can browse your phone's file system on Android Marshmallow without downloading a separate app?

If you, like us, are accustomed to micromanaging your files on your computer, the lack of a built-in file manager on smartphones can be a serious pain point. Why do we have to jump from app to app to manage files? Why can't we do it all from one place? Sure, you can find various file management
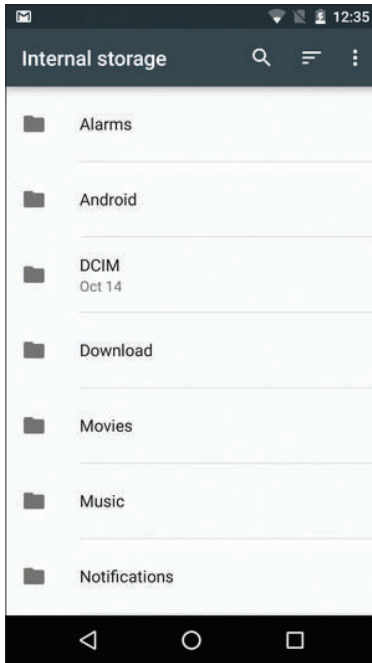
Android 6's file manager
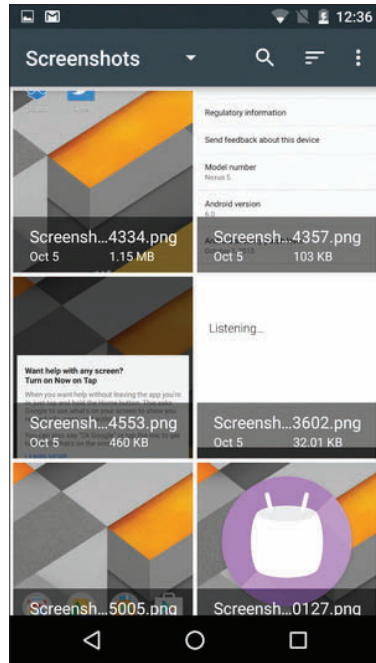
Grid View gives you larger icons and file previews than List view

apps on Google Play, but Android itself never shipped with one. Until now, anyway.

Android 6 Marshmallow includes a hidden file manager that's switched off by default, but you can switch it on quickly and easily if you know where to look. Go to the Settings app then tap Storage & USB (it's under the Device subheading). Scroll to the bottom of the resulting screen then tap Explore: Just like that, you'll be taken to a file manager that lets you get at just about any file on your phone.

The file manager is pretty basic, but it'll feel pretty familiar to anyone who's used the OS X Finder or

Windows Explorer: Tap a folder to view its contents, tap a file to view it, press and hold a file icon to get at additional options (Delete, Share, and so on).

A basic search feature makes it easier to find just the file you're looking for. You can also change the sort order for items (tap the View button – the three horizontal lines in the toolbar) or switch between the Grid view and List view (tap the Options menu button – the three dots in the upper-right corner).

Unfortunately, the file manager is a little difficult to get to – it's actually part of the Settings app, so you can't add it to the homescreen, for example. Ideally, the file manager would be a separate app that you can optionally show in the app drawer, but as it stands, Android Marshmallow's file manager is a welcome new addition.

3. Use Bluetooth to improve GPS Accuracy on Android Marshmallow

Improve your phone's location accuracy with the flip of a switch. GPS by itself generally does a pretty good job at pinpointing your location, but it isn't perfect. Sometimes, you'll get a good GPS satellite signal, but other times, your phone's GPS won't be able to show you exactly where you are.

Android can bolster your GPS capabilities by using nearby Wi-Fi access points and cell towers to better triangulate your location, and with Android
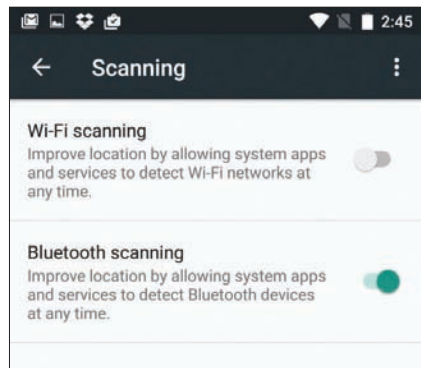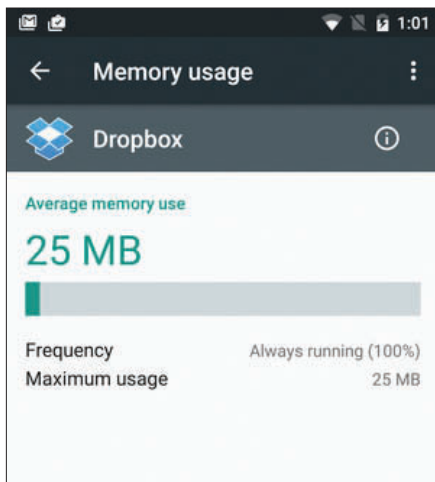

Switch on Bluetooth scanning to use Bluetooth to help find your location

Marshmallow, you can use Bluetooth to improve your location accuracy further still.

To do so, open the Settings app and go to Location, Tap the Options menu button – those three dots in the upper right corner – and select Scanning from the menu. Finally, slide the Bluetooth scanning toggle to the on position if it isn't already. Now, make sure that your phone is set to take advantage of Bluetooth scanning. Return to Settings > Location, tap Mode, then tap High accuracy. This will let your phone use a combination of GPS signal, as well as Wi-Fi, Bluetooth, and cell tower triangulation, to more precisely pinpoint your location.

4. How to make sense of Android's memory manager

Android's new memory manager makes it easier than ever to make sense of how your Android phone is using its RAM. Compared to iOS, Android has always given users more information about the underlying guts of the operating system. In Android Marshmallow, Google takes this one step further with a new memory manager that gives you all sorts of information on how your phone is using its RAM. Here's how to navigate it.

Go to the Settings app, then tap Memory. Here you'll get an at-a-glance

Tap an app name to get more information

overview of your phone's memory usage for the past three hours. It includes your phone's average total memory use for all apps and Android system components, your phone's total memory, how much free memory remains, and the percent of memory currently in use. It also gives an indicator of how memory usage on your device has impacted its performance over that time.

If you'd like to get an idea of how your phone is managing its memory over a longer period of time, tap the downward-facing arrow next to '3 hours' and pick a different time span. You can view general memory usage stats for the past three-, six-, 12- or 24 hours.

Tap Memory used by apps to get a breakdown of how much memory each running app is eating up. Again, it defaults to showing memory usage for the past three hours, but you can view stats for three, six, 12, and 24 hours, just as you can with the general overview. Tap the name of any app to get more nitty-gritty details, and to force-stop a problematic app (tap the Options menu – the three dots in the upper right – then tap Force stop).

Admittedly, a lot of this information is purely for geeks – if you have no interest in how your phone uses its RAM and it isn't giving you any trouble, you probably won't ever have to peek in the Memory panel. But it's good to know that this information is there if you need it.

5. How to change your default browser and phone apps in Android Marshmallow

Android M makes it simpler to change your default browser, phone, and SMS apps. The ability to set a
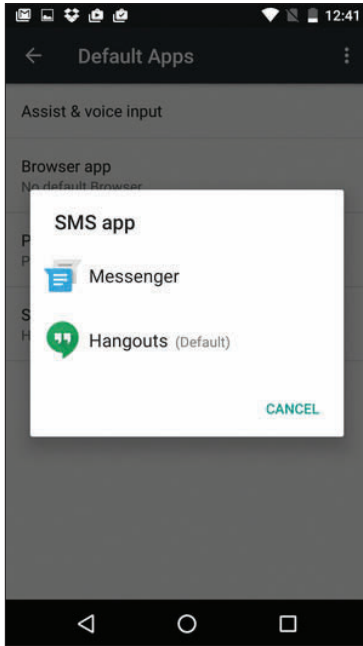
Choosing a new SMS app

different default app for various functions – such as browsing the web or checking email – isn't new in Android Marshmallow. But prior to Marshmallow, you had to dig through Settings > Apps, clear your default app setting, then go back to the homescreen and reselect a new default. Marshmallow adds a new one-stop shop that makes it easier than ever to change your default app of choice at any time. Here's where to find it, and what it can do.

Go to the Settings app, then tap Apps. Next, tap the Gear icon in the upper-right corner, then tap Default Apps. Here you can set a new default phone app, web browser, messaging (SMS) app, and assistant (Assist and voice input) app. For all but Assist and voice input, tap the function for which you want a new default app, then select the app you'd like to use from the list.

For Assist and voice input, you'll be taken to a separate screen that provides some other options for this feature. To change this app, tap Assist and voice input, then tap Assist app on the subsequent screen and select a default app as before.

It'd be great to see Google take the default apps feature up a notch in a future release of Android. Right now, the Default Apps pane is somewhat hidden in the Settings app, and it can only

change the default assistant, phone, browser, and messaging apps. If you want to set a new default email app, for instance, you're more or less out of luck. Still, it's better than nothing, and it gives Google something to build off of in the future.

6. How to turn off heads-up notifications in Marshmallow

Not a fan of Lollipop's heads-up notifications? Android Marshmallow lets you turn them off for individual apps.

Android Lollipop introduced a new type of notification that Google calls 'heads-up notifications'. Instead of showing a scrolling message in the status bar – as was the case with notifications in earlier versions of Android – Lollipop's heads-up notifications slide down over the status bar and provide a larger, more visible notification message.

The change was controversial. These new notifications may look prettier and be easier to read than the old ones, but some users have bemoaned the change since the new notifications obscured other onscreen content. Heads-up notifications are still around in Android Marshmallow, but you can now switch off heads-up notifications on a per-app basis.

Open the Settings app, then tap Sound and notification. Tap App notifications, then tap the name of the app you no longer want to see notifications for. Next, toggle the Allow peeking switch to the Off position – it'll turn from blue to grey. Just like that, you will no longer receive heads-up notifications for that app. Unfortunately, Marshmallow doesn't appear to have a system-wide setting for these
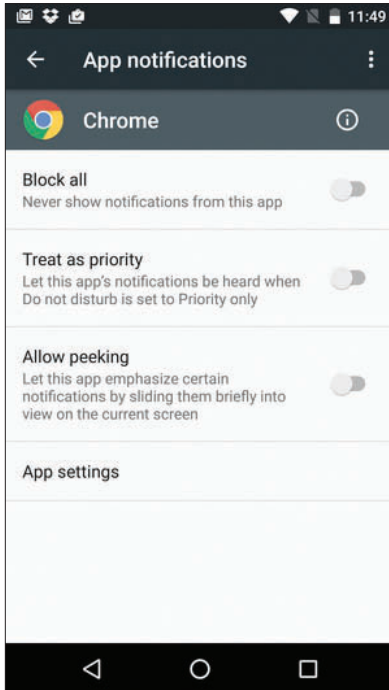
Slide Allow peeking to the Off position to disable heads-up notifications for a given app

sorts of notifications, but at the very least, you can reduce the number of heads-up notifications you see.

7. Delete apps without leaving the home screen

No more digging through the Settings to delete an app – now you can remove it with a quick drag and drop.

In prior versions of Android, you had to go poke around in Settings in order to delete an app from your device. In Android Marshmallow, Google has simplified the process to the point where you just need to drag and drop an icon.

Find the app you want to uninstall, either in the app drawer or on the homescreen. Press and hold that app's icon for a moment until your phone buzzes. If you can delete the app, a trash can icon with the word 'Uninstall' next to it will appear at the top of your screen. Drag the icon to the trash can to delete the app. Android will ask you to confirm that you want to delete the app: tap OK, and that app will be deleted from your device.

You can't delete apps that come bundled with Android – you can only delete apps you downloaded separately from Google Play. You can, however, remove apps from the homescreen using

this same trick. But instead of dragging the app's icon to the Uninstall icon, drag it to the Remove icon – a large X – instead.

8. How to turn off doze mode for specific apps in Marshmallow

Doze mode will help save your phone's battery, but you can easily switch it off if you want. New in Android Marshmallow is a feature called 'Doze mode', which prevents certain tasks from running if you're phone's been sitting idle for a while. The idea here is to save battery life by reducing power draw while you aren't using your phone.

But if you have a particular app that you want to leave running unchecked, no matter what, you can disable Doze mode for that app. Here's how to do it.

Open the Settings app and tap Battery. Tap the Options menu button (the three dots in the upper right), then tap Battery optimization. Tap the downward-pointing arrow, then tap All apps from the menu that appears. Next, tap the name of the app for which you want to switch off Doze mode, and in the box that appears, tap Don't Optimize. Once you're done, tap Done.

You can turn Doze mode back on at any time – simply repeat the above process, but when prompted, tap Optimize instead.

## 9. How to customise Android Marshmallow's Quick Settings tray

A hidden feature in Android Marshmallow lets you add, remove, and rearrange shortcuts in the Quick Settings tray. Here's how to use it. The Quick Settings tray isn't new in Marshmallow, but tucked

away in the bowels of Google's new mobile OS is a hidden feature that lets you customise what appears there. It's a useful tool if you don't want certain items you'll never use taking up space in the Quick Settings tray, or if you want to rearrange the icons so that the shortcuts you use most often are in an easy-to-reach place. It takes a little trickery to get to this feature, but it's easy enough to get to.

First, you need to enable Android Marshmallow's System UI Tuner. To do so, first swipe down from the top of the screen to open the notification drawer, then swipe down again to open the Quick Settings tray (or, swipe down with two fingers). Next, press and hold the gear icon in the upper right corner for a few seconds until the gear icon starts spinning. Release your finger, and you'll be presented with a message telling you that System UI Tuner is up and running.

Open the Settings app if it isn't already, scroll down, then tap System UI Tuner under the System subheading. If this is your first time using System UI Tuner, you'll get a message warning you that System UI Tuner features are 'experimental' and

'may change, break, or disappear in future releases'. Read and dismiss the message, then tap Quick Settings. At this point, you can rearrange, remove, or add items to the Quick Settings tray quickly and easily. To rearrange items, simply drag them around. If you want to
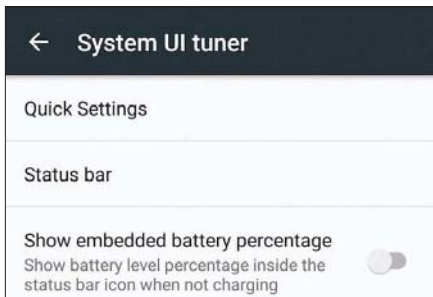
Android Marshmallow's hidden System UI Tuner settings screen

remove an icon, drag it from its location in the Quick Settings tray to the Delete icon. If you want to add (or re-add) an item, tap Add tile, then tap the name of the setting you want quick access to.

The Quick Settings customisation tool works reasonably well, but it's still a little rough around the edges. That said, it works well enough that we can see Google building it out a little more and making it easier to access.

10. How to toggle app permissions in Marshmallow

In Android Marshmallow, Google has totally revamped how you manage app permissions: it's a change that's apparent every time you download an app from Google Play. You'll get a new, more detailed permissions notice, but it goes much deeper than that. Don't want Chrome to be able to see your location? Not a problem. With Marshmallow, You can pick and choose what sorts of information and which system resources any given app can access. Here's how to find and use this new feature.

Open the Settings app, then tap Apps under the Device subheading. Next, tap the Gear icon in the upper-right corner, and then tap App permissions on the following screen. From here, you'll get a list of all the sensors, information, and other features of your phone that apps can access. Tap on any of these to see which apps can get at that particular feature. For the sake of this tutorial, we'll take a look and see which apps can access my phone's camera and snap photos, so we'll tap Camera.

To revoke an app's permission, tap the toggle switch to flip it to the Off position – it'll switch from

blue-green to gray. To re-grant permission, simply tap the toggle switch again. By default, you'll only see apps here, not Android system services. To see which system services have permission to access something, tap the Options button – those three dots in the upper right – then tap Show system.

If you prefer to view permissions on a per-app basis rather than a per-feature basis, go to Settings > Apps, tap an app's name, then tap App permissions. From there, you'll be able to see what features and information that particular app can access, and toggle permissions accordingly.

When you download an app from Google Play, you'll get a message that explains the permissions an app requires, just as it has before, but it'll now provide a little more information on the privacy implications. Unfortunately, most Android apps still don't specifically say how they're going to use your information up front, but Marshmallow's improved permissions features do make it easier to make sense of what had been a confusing state of affairs.

Note that some apps haven't been adjusted to account for Android's new pick-and-choose permission model. You can still toggle individual permissions, but it could cause those apps to misbehave. If you have an app that isn't working right, you may want to revisit its permissions.
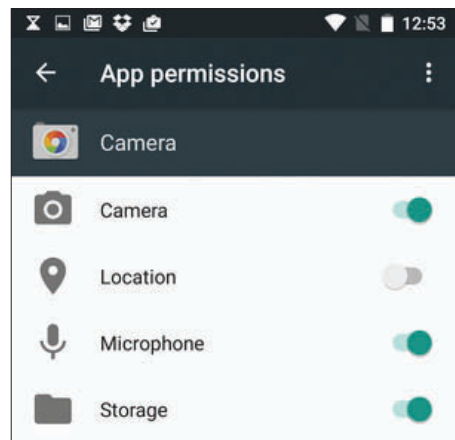
Viewing permissions on a per-app basis
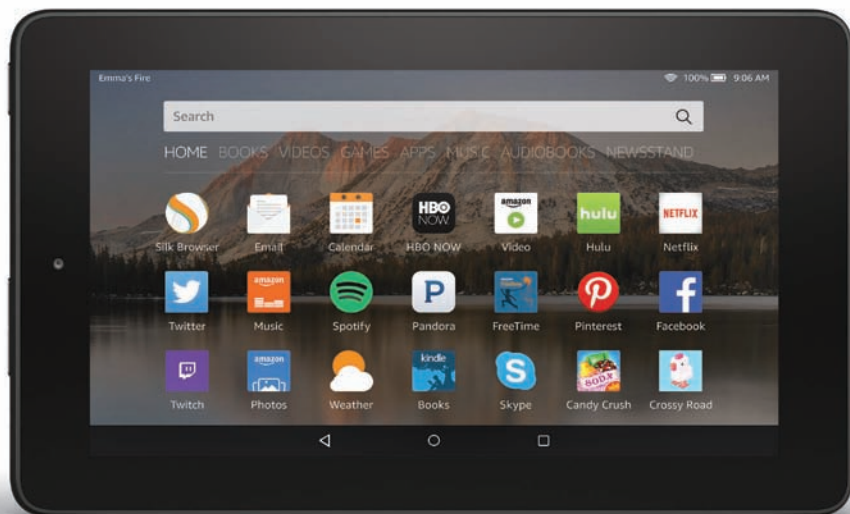
Review:
Amazon Fire

At £49, this is the best budget tablet on the market

£49 inc VAT • amazon.co.uk ★★★★☆

You can buy the Fire for £49 from Amazon. That's a crazy price for a brand-new tablet, but it really is that cheap. This price includes 'special offers' which means you'll get adverts for products on the lock screen. When you buy the Fire you'll see an option to pay £10 extra to remove these. You get a mains charger and USB cable in the box.

The same tablet is available to buy as a Kids Edition for £99.99. This includes a special bumper

case in blue or pink, a year's subscription to Fire for Kids and a two-year 'worry free' guarantee that covers accidental damage.

There are also two other models in the range: the Fire HD 8 which you can buy for £129.99 and Fire HD 10 which Amazon sells for £169.99. There's actually a fourth model, but it's not new: we've already reviewed the 2014 Fire HD 6.

The HD 6 was available in a Kids Edition, too, but as the basic tablet still costs £79.99 yet lacks a microSD slot, it's impossible to recommend in the light of the new models. You can't buy it in a Kids Edition any longer.

Design

This isn't just an older model with a price drop: the new Fire has a new design. Amazon has moved away from the angled edges and chamfered rear panel. Now there's rounded edges and corners.

All the ports and buttons are on the top edge which makes them easier to access when in a case, and you can buy the official Amazon case in a range of colours for £19.99. The case's lid folds a bit like a picture stand and props up the tablet in both portrait and landscape orientations. Alternatively you can buy a more rugged kids' case for the same price, but Amazon says the Fire is 1.8 times more durable in "tumble tests" than the iPad Air 2 anyway.

It's hard to know exactly what that means, but if you want to you can buy extra warranty for the tablet that includes accidental damage for £14.99 for one year, £19.99 for two years or £29.99 for three years.

Build quality doesn't feel especially good. When you tap the back panel the tablet sounds hollow, and

if you try to twist the whole thing, colours change on the screen. But that goes for most tablets: if you try to break them, they will break.

The bezels around the screen are still a bit fat to make it look stylish, but such things aren't concerns when you're spending this little. At 313g and 10.6mm thick it's a bit podgy, too, even though it's marginally lighter and smaller than previous generations.

The screen is an IPS panel, though. That means it's instantly better than the majority of budget tablets, which insist on using poor-quality TN screens. IPS means viewing angles are good, and that's one of the most important aspects on a tablet. The low resolution of 1024x600 makes things look a bit blocky and fuzzy, but the interface has been designed around this and everything looks better than you'd expect. There are exceptions, such as when you're faced with a terms and conditions screen with small print and tiny tick boxes.

Colours are reasonable, as is brightness and contrast. Our main criticism is that the screen is sometimes unresponsive to touch. Whether this is a failing of the screen itself (the touch-sensitive layer) or the performance (see below) is unknown. But sometimes you tap multiple times before your gesture is acknowledged.

You get front and rear cameras, a single rear-facing speaker, Wi-Fi and Bluetooth, and little else. But there is one major addition: a microSD card slot. Until now, Amazon tablets have been hamstrung by non-expandable storage. This meant that the 8GB versions filled up within days (if not hours) and you were constantly bombarded with messages telling you delete things to free up storage.

The Fire is available in only one capacity: 8GB, but you can add up to 128GB by buying a microSD card. You can install apps on the memory card, but certain apps have to be installed on the internal storage. Of course, you can put movies, music, home videos and photos on the card to free up internal space.

Costs are cut by using the basic versions of everything: the Wi-Fi is single-band 802.11n, and it's a USB 2.0 port rather than anything newer. But few people need anything better, and most people won't even notice. What you will notice is that the cameras are rubbish. The front camera has a paltry 640x480 resolution and is barely up to being used for Skype calls, and the rear camera produces smudgy photos and shaky, blurry videos. And that's when there's lots of light.

Performance

With a quad-core 1.3GHz processor and 1GB of RAM we were never expecting great performance from the Fire. We could list a load of benchmark results here, but for most people thinking about buying this cheap tablet there's only one question: is it fast enough?

In general, it is. Sometimes it's quicker than you'd expect, and the operating system – Fire OS 5 – feels slicker than some Android tablets costing twice as much. Apps load within a couple of seconds,

and naturally even faster if they're already running and you're just switching back to them.

But the limited amount of RAM means you have to be careful not to run too many in the background as the Fire becomes sluggish and unresponsive when you max it out. The screen can take a while to rotate when you turn the tablet, so you turn it back and the screen rotates to the other position as you do.

It's no speed demon for games, either. But if you're just crushing candy or playing other casual games, it's absolutely fine. Battery life is okay, but not great. Amazon says it will last up to seven hours, which is a few hours short of the best tablets today. Charging time can be an issue, as it takes almost six hours using the included mains adaptor.

Software
One of the biggest improvements over previous generations of Fire tablets is the latest version of Fire OS, version 5, but referred to as Bellini. There's logic here, since Fire OS is based on Android which uses friendly codenames as well as numbers.

Bellini is based on Android Lollipop, and it shows much more than in the past. You get an almost standard Android notification / quick settings panel when you swipe down from the top of the screen and can swipe away notifications, adjust screen brightness and toggle Wi-Fi and Bluetooth on and off. Even the on-screen buttons at the bottom are the same as Android's. The square icon brings up the standard Android app switcher where you can swipe away apps to close them.

You can also switch user accounts in the usual Android way, by tapping on the user's photo (or icon)

on the lock screen or from the notification panel. This is particularly good if you're sharing the tablet with your kids, or buying one for them to share.

You can set it so that when they switch to their account, the Fire for Kids app automatically opens. It lets you choose which apps, books, games and more they can access in their individual account. While we've praised this mode before (it used to be called Freetime), it could still be improved. For example, it would be more intuitive to have a search option in each of the books, videos and apps sections.

Note that there's no web browser in this mode. If you want to grant access, you'll need to set up a standard user account for them rather than a child's.

The benefit of using a child profile is that there's excellent control over how much time (and when) they can use the tablet. You can set separate times

for weekdays and weekends, as well as different time limits for watching videos, reading books and using apps. You can even set goals, such as 30 minutes of reading per day and block access to videos and apps until the goal has been met.

The main interface is also more Android like. Instead of the old carousel of recently used apps, you now swipe between home screens which are divided into Home, Books, Video, Games, Shop, Apps, Music, Audiobooks and Newsstand. All your recently accessed stuff is off to the left of the Home screen. We prefer this segregation of content and, like it or not, it also means tight integration with Amazon's various stores and services. Obviously it makes the most sense in conjunction with an Amazon Prime account: you'll only see things in the Video section if you subscribe to Amazon Prime Instant Video or buy (download) videos from Amazon to rent or keep.

But as a storefront for Amazon's goods and services, it's very slick.

The downside is – as ever – no Google apps whatsoever. Want to use YouTube? You'll have to do that via the web browser or use one of the many third-party apps (none of which we've found to be very good). You can set up your Gmail account to work with the E-mail, Calendar and Contacts apps, and you get separate apps for Photos and Home Videos.

The selection of apps and games in Amazon's Appstore is more limited

– still – than Google Play but the new Underground section is very welcome. Again, it's a great feature for a kids' tablet as you can be sure there are no in-app purchases with a free app. You do have to be careful, though as there are often two versions of a free app: one in the Underground store which is 'truly' free, and a second which includes in-app purchases. The range of preinstalled apps is good, including a document viewer, world clock, calculator and more, but there's no mapping app and you won't find Google Maps in the store.

Verdict
It's not perfect, and the lack of Google apps will still put some people off, but the Fire is excellent value at under £50. The latest Fire OS is so Android-like that it's easy to use, and the Fire for Kids app makes it possible to limit what you kids can do and how long they can use the tablet. There are some sore points: the poor cameras, the sluggish performance at times, and the long charging time. But at this price it's hard to complain.

Specifications
• 7in (10240x600, 171ppi)
• Quad-core 1.3GHz processor
• 1GB RAM
• 802.11n Wi-Fi (2.4GHz only)
• Bluetooth (with support for A2DP)
• Rear 2Mp camera, front VGA camera
• 8GB internal storage
• MicroSD slot for up to 128GB additional storage
• 191x115x10.6mm
• 313g

Review:
Google Nexus 6P

One of the best Android phones on the market

£449 inc VAT • google.co.uk ★★★★☆

When Google launched the Nexus 6, it wasn't the upgrade that Nexus 5 owners had been looking for. The 5.96in screen made the Motorola-built phone too big and heavy. In 2015, Google has decided to adopt Apple's strategy

and launch two phones, with the aim of appealing to a wider audience. There's the 5X (page 58), the true successor to the Nexus 5, and the 6P, which we look at here, with a 5.7in screen.

Design

The 6P is the first all-metal Nexus flagship smartphone. It's made of CNC-machined aeronautical-grade aluminium, which Google says is "really nice". And it is. It's slim and sleek for a big phone, and looks very much the part.

It feels lighter than you expect, too – it's similar in size to the iPhone 6s Plus, but weighs around 20g less. Recently, videos have been posted showing how 'easy' it is to break the Nexus 6P in half. It may not be the strongest phone out there, but as long as you don't grab it with both hands and try to snap it in half, then it's probably going to be fine. More worrying is the small number of reports of the glass panel covering the rear camera spontaneously cracking or shattering.

Aside from this controversy, the phone looks better in the flesh than in pictures. Although the black strip of gorilla glass looks ugly, it's not that bad when you see it for real, and the very slight bulge helps you work out which way is up by touch alone. If we're being really critical, we don't like the plastic panel that sits at the bottom of the rear side. It doesn't match the aluminium in colour but – as with the top strip – hides antennas. The huge CE markings (not shown in the photos here of an early sample 6P) seem a bit unnecessary, though.

Compared to the Nexus 6, the 6P is much more manageable to hold with one hand. It's thinner by

3mm and the bigger screen-to-body ratio makes all the difference. While it's not going to slip easily into a pocket (especially in a case) it's going to be a lot easier to live with.

Around the back – just as you'll find with other Huawei phones such as the Mate S – is a fingerprint scanner, called Nexus Imprint. This will come in handy for Google Pay and – eventually – third-party apps, although there's still no confirmed launch date for Android Pay in the UK. You can register five fingers and there's no need to wake the phone before using it.

Your index finger almost falls naturally on to the sensor when you pick up the phone – it's something we quickly adjusted to. Like the iPhone 6s, the scanner is very fast, recognising your print almost instantaneously, and waking and unlocking the phone. At the front are stereo speakers and there are three mics – two on the front and one on the rear. Compared to phones with speakers at the back or on the bottom edge, the sound quality is excellent and there's plenty of volume.

To add to the disappointment of non-expandable storage, there's an irremovable 3450mAh battery. Google says the support for fast charging gives you up to seven hours of use from only 10 minutes of charging. However, you'll need to use the included charger. When we hooked up to our in-wall USB charging plate, we saw the battery go from 7- to 28 percent in 30 minutes. That's no quicker than an iPhone 6s Plus charges.

But with the official charger, the phone charges from 15- to 30 percent in a little over 10 minutes and 15- to 90 percent in just over 30 minutes.

Fast charging is most effective when the battery is very depleted, though.

Display

If you like big screens, you will love the 6P's 5.7in AMOLED display that's protected by Gorilla Glass 4, which is fitted flush into the aluminium frame. The resolution – as you'd expect of a premium Android flagship – is a quad-HD (2560x1440). It's by no means the first to have this resolution, but it looks gorgeous, with eye-popping colours and detail. Viewing angles, of course, are very wide and contrast is fabulous.

The high resolution also helps when taking photos and videos as its much easier to see when things are in focus (or blurry). Look as close as you like: you can't see the individual pixels that make up the screen.
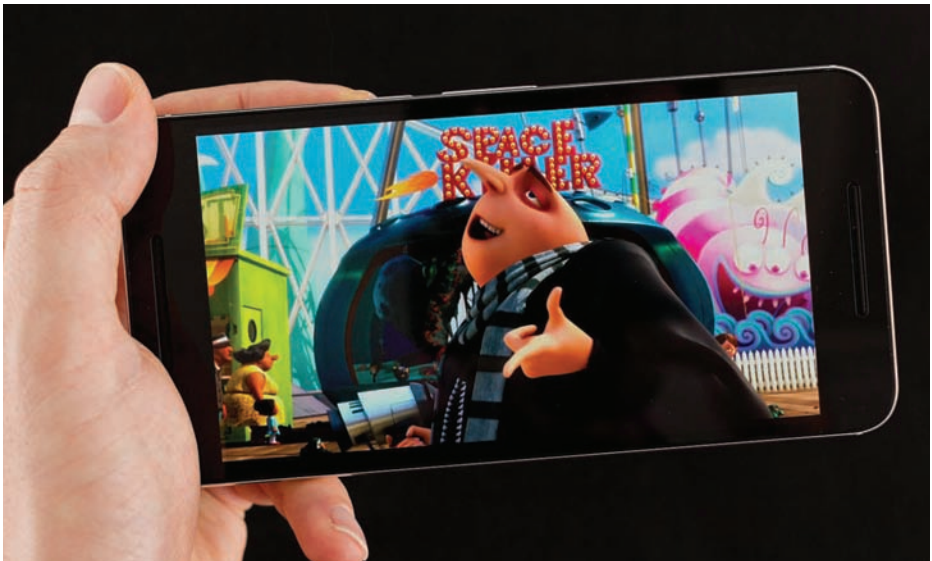
The screen looks good at any screen brightness including when dim – something other AMOLED phones fail at. The tech also offers battery-saving potential. When you pick up the 6P, notifications are shown in mono and only the necessary pixels are lit up. Off-centre it's possible to notice a rainbow effect – like an oil slick that covers the screen – but for the majority of time you won't see it.

Hardware

The 6P is powered by a Snapdragon 810 v2.1 octa-core processor (as also used in the OnePlus 2). It has Adreno 430 graphics and is backed by 3GB of RAM. As you can see in our graphs (right), it's not the quickest by any means. In use, it's more than fast enough but we were frustrated by the odd moment of hesitation when using certain apps or changing certain settings.

A handy feature is being able to double-press the power button to launch the camera app, which starts quickly and means you can take a photo almost as soon as the phone is out of your pocket. Thoughtfully, the button has a rough texture, so your finger can differentiate it from the volume rocker below. The battery will last a day with general use. It's the same story as for other flagships: use it lightly and you'll get a day and a half, but hammer it (with games and shooting 4K video) and you will be reaching for the USB-C cable at dinner time.

But Android Marshmallow brings new power features to the table: App standby and Doze. The former closes down apps that haven't been used, which helps a little, but Doze is superb. When your phone is in standby and not moving, it kicks in

automatically and shuts down whatever it can. You don't need to enable it as it's part of the operating system. Only high-priority alerts will get through, such as text messages. Others, like a reply to a Facebook post, won't. What it means is that your 6P's battery won't drain overnight if you forget to put it on charge: our sample went down only a couple of percent in nine hours.

In terms of connectivity, there's dual-band 2x2 MIMO 802.11ac, Bluetooth 4.2, NFC, GPS and LTE. And along with the fingerprint sensor, there's an accelerometer, gyroscope, barometer, proximity sensor, ambient light sensor and hall sensor.

Cameras

In previous Nexuses, the camera has been a bit of a sore point. LG, Motorola and others haven't managed to put in a camera worthy of the 'premium' tag. However, the 12.3Mp Sony sensor in the 6P changes all that.

It may not have the highest resolution, but anyone that knows anything about cameras will know that larger pixels – bigger receptors – capture more light

Geekbench 3
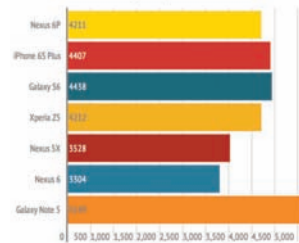
GFXBench Manhattan
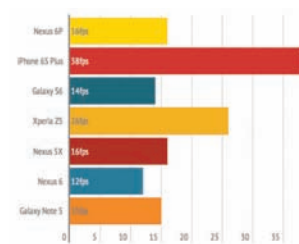
GFXBench T-Rex
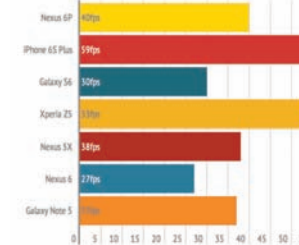
SunSpider*

* lower is better

and therefore more accurately capture colours. It's not always true, but this is most certainly the best camera on any Nexus phone.

The pixels are 1.55 microns in size – compared to 1.22 in the iPhone 6s Plus, for example. (The 6 Plus had 1.55-micron pixels, but was only 8Mp.) This help indoor photography in particular, where there's much less light. You also get slo-mo video, at 240fps in 720p, and you can select the section of video to slow down in the Google Photos app. A burst mode shoots at 30fps and you can then choose your favourite later from a sele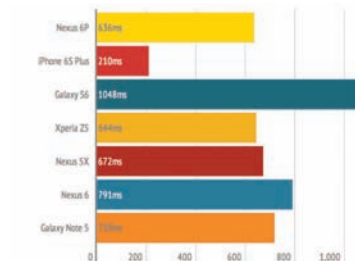ction of eight. The phone can also make an animated GIF from these, which is highly shareable unlike Apple's new Live Photos.

In our tests, the main camera performed admirably. For the most part the laser autofocus did its thing, working quickly and accurately. There were still around 10 percent of blurry shots, some of which shouldn't have been as nothing was moving in the frame. But the other 90 percent were largely spectacular. Images are processed – obviously – and the sharpening and saturation may be overdone for some tasted, but we loved it. Flowers, foliage, grass, fur: everything is sharp and detailed.

Macro shots are great too, and the ability to tap the screen to set a focus point, then use the volume buttons to take the shot instead of stabbing the onscreen button and wobbling the camera is great.

In low light, the 6P does a great job of retaining detail, albeit seemingly at the expense of colour noise. In the photos below, it's clear the 6P's image is too saturated compared to the iPhone 6s Plus. But the 6s Plus' effort lacks detail - the smudging effect is likely a result of the noise reduction system.

The Nexus 6P's videos are excellent, too. 4K footage has the expected detail, along with vibrant colours. The speedo icon in the native camera app makes it easy to flip between 30-, 120- and 240fps (changing resolution as you go) but there's no support for 1080p/60. We hope this is added in an update. But the camera app is well designed and sensibly defaults to the highest resolution for photos on both front- and rear cameras. There's also tight integration with Google Photos, which is both a great app and a great service. For example, you can turn off 'creations' in the c bust mode settings.

The app also supports HDR, panoramas and photo spheres (the latter of which stitches photos so you can explore the full 360 degrees of a scene).

Let's not forget the front camera in all of this. The 8Mp sensor is also capable of great photos: sharp

and with lots of detail. It's ideal for selfies and has a wide-enough field of view to get two people in the shot at arm's length. It will also record 1080p video at 30fps. Panoramas (or wide selfies) aren't currently supported in the app, though.

Software

Out of the box, the 6P has Marshmallow – Android 6.0. It comes with several new features. Now on Tap allows you to get context-sensitive information 'cards' by holding the home button. That might not sound all that different from Google Now in Lollipop, but the difference is that it will work within apps, offering information relevant to that app. In many other ways, Marshmallow looks very similar to Lollipop, with minor tweaks here and there. The

are individual volume sliders for media, notifications and alarms, for example.

Verdict
Originally, Nexus phones stood out for being excellent value at a low price. They weren't an alternative to flagship handsets, but they had the advantage of running stock Android and getting the next version more quickly. The 6P, though, is not only a flagship, but is the best Android phone on the market. It won't suit everyone due to its size, nor those looking for a phone with dual-SIM slots or a removable battery. But the excellent screen, front-firing speakers, quick charging, great cameras, speedy performance and Android Marshmallow add up to make this a phone that's a pleasure to use. And yes, it's also cheaper than its rivals.

Specifications
- 5.7in (2560x1440) Quad HD touchscreen
- Android Marshmallow 6.0
- Qualcomm Snapdragon 810 v2.1 octa-core processor at 2GHz
- 32-/64-/128GB storage
- 3GB RAM;
- 12.3Mp main camera, dual-LED flash, support for 4K video at 30fps
- 8Mp secondary camera
- 802.11ac dual-band Wi-Fi with 2x2 MIMO
- Bluetooth 4.2
- GPS
- NFC
- 77.8x159.3x7.3mm
- 178g

Review:
Google Nexus 5X

The upgrade Nexus 5 owners have been waiting for

£449 inc VAT • google.co.uk ★★★★☆

One of two new Google phones, the Nexus 5X is the smaller brother to the 6P, (page 48) and one of the first to run Android 6.0 Marshmallow. It has quite a few upgrades compared to the Nexus 5, which arrived way back in 2013,

and is also built by LG as Google's manufacturing partner. And as the LG G4 is now cheaper, it's one of the 5X's rivals. In fact, this Nexus has lots of rivals, including the Moto X Play, and the cheaper OnePlus 2. It's a great phone overall, with one of the best 1080p screens we've seen, along with one of the best cameras. But it's not all great news. This isn't just a 6P with a smaller screen, sadly. The 5X also has a slower processor, which means it lacks some of the shooting modes you get on the 6P and – for some reason – Google thinks people won't want any more than 32GB of storage. And the base 16GB model really doesn't have enough usable storage for a phone that records 4K video which uses up 300MB per minute.

But instead of dwelling on the negatives, let's get into the detail as there's lots to like about the 5X.

Design
Despite an increase in screen size from 5- to 5.2in, the Nexus 5X is still nice and light. It weighs a comfortable 136g, and is 7.9mm thick. It is larger than the 5, though, so anyone hoping for a bigger screen in a phone the same size will be disappointed. Here's how they compare:

Nexus 5: 138x69x8.6mm, 130g
Nexus 5X: 147x73x7.9mm, 136g

Rounded edges on the rear panel make the 5X a nice phone to hold in the hand and we like the matt finish plastic, which is similar to the original. There's a choice of colours including Black, White and Ice Blue, although this applies only to the back: they're

all black on the sides and front. There's not a lot else to say on the design front as the device, like the Nexus 5, is plain. That's a good thing, although features such as waterproofing wouldn't go amiss. One thing to note: despite appearances, the 5X does not have stereo speakers. The top grille hides a speaker that's used for phone calls, with only the bottom one being a loudspeaker.

Another thing to point out is that the camera does stick out a little bit at the back. It's now positioned centrally and although the Nexus 5's camera wasn't flush the 5X's protrudes much more.

If you're wondering about the circle below the camera, it's a fingerprint scanner, which we'll talk in more depth below. The Nexus 5X takes a nano-SIM rather than micro, which may require a new SIM card if upgrading from the Nexus 5.

Hardware

Given that the Nexus 5 launched two years ago, it's no surprise that the 5X is upgraded in almost every area. But don't expect it to blow its predecessor out of the water because the top-end hardware has been reserved for the 6P.

Google has decided to stick with a Full HD screen resolution on the Nexus 5X. This, of course, means a small drop in pixel density to 424ppi. It's not noticeable, of course, and the screen is still crisp with pixels that are invisible to virtually all human eyes. But if you want an upgrade to Quad HD, you'll have to look at the Nexus 6P – or elsewhere. The LG G4 is around £399 – £60 more than the 5X.

Staying with the display, the 5X has an IPS LCD panel just like the Nexus 5, but unlike the 6P, which

uses AMOLED. However, this is no criticism. The 5X has one of the best screens we've seen on a smartphone. Although the colours don't assault your eyeballs as they do on the 6P, they're accurate and the screen is bright with excellent contrast.

There's an uprated Qualcomm processor too. The Snapdragon 808, as used in the flagship LG G4, is a nice upgrade from the 800 model which was top-of-the-line when the Nexus 5 arrived.

This means the Nexus 5X has a six-core processor with four A53 cores at 1.4GHz and two A57 cores at 1.8GHz. There's also Adreno 418 graphics which performed well in our tests – better than the Nexus 6P's Adreno 430 in fact. (This is

due to the fact the 6P has more pixels – it's more powerful if you run the benchmarks at 1920x1080.)

Despite rumours suggesting the 5X would have 4GB of RAM, the allocation remains at 2GB. And storage options are more limited than the 6P. The 5X doesn't offer 64- or 128GB as the 6P does, instead there are merely 16- and 32GB options. And as usual with Nexus phones, there's no microSD card slot, so you'll probably want to go for 32GB, which costs £379.

One of several features shared between the two new phones is the fingerprint scanner: Nexus Imprint. It's positioned below the camera at the rear of the phone. It might seem a little strange, but it's where your index finger naturally lies.

It's also incredibly fast and unlocks the phone almost instantly. The system learns your fingerprint and recognition improves over time. As well as offering easy access to the phone, other apps can use the sensor for logging in or making payments. Plus, of course, Android Pay will be coming to the UK at some point, so you'll be able to pay with your phone in bricks and mortar stores as you can with an iPhone. The next shared feature is a new physical port in the form of USB-C which is fast becoming the standard for new Android phones: it can also be found on the OnePlus 2 and the Xiaomi Mi 4C.

USB-C's main feature is that it's reversible, but it also enables fast charging and you can even charge other devices from the 5X should you wish to.

The larger frame means a larger battery at 2700mAh, but it's a big shame there's no wireless charging: that's a step backwards from the Nexus 5 and a blow for many looking to the 5X as the

definitive upgrade. Elsewhere there's dual-band 11ac Wi-Fi, LTE (both faster than before), NFC and Bluetooth 4.2, but no infrared port or extras such as a heart-rate monitor.

Cameras

The last of the shared upgrades between the 5X and 6P are the cameras. Arguably, this is the biggest upgrade for the 5X. The Nexus 5's 8Mp camera wasn't amazing, even with the software updates that improved things following its launch. But amazing is an adjective that will be used repeatedly for the 5X's main camera. It's one of the best cameras on any phone and as far as we can tell is identical to the unit on the 6P.

At 12.3Mp, the new camera is not only higher resolution, but has a dual-tone LED flash, an IR laser focusing system and can shoot 4K video. There are phones with more megapixels, but the larger size of the sensor and pixels means more light hits them.

The improvement in quality is obvious from the photos, but it performs well not only in good light: it's also pretty good in dim conditions too.

In photos and videos colours are rich and detail is sharp. As we said in our review of the 6P, there's possibly a little too much sharpening going on. But most people will be over the moon with this level of quality from a £339 phone.

It's worth noting that you need to use the HDR+ mode most of the time to get the best quality, and this does introduce a second or so delay of processing between images. You can shoot without it, but skies tend to blow out even when the contrast to the foreground doesn't appear that high.

The other gripe is the absence of a 60fps 1080p mode: you can shoot video only at 30fps in

4K or 1080p. That's something which could be fixed with a software update.

Features

What won't be added is a 240fps slo-mo option, nor SmartBurst. Both are features you get with the 6P. The Snapdragon 808 isn't quick enough to handle the way Google has implemented these features, so you're limited to 120fps at 720p. It's a shame, but won't be a dealbreaker for everyone.

More of a disappointment is that the 5X doesn't even have electronic image stabilisation, let alone optical. That means both new Nexus' lack OIS and you'll need steady hands if you want shake-free video and blur-free low-light photos from your 5X.

At the front is a nice upgrade to a 5Mp selfie camera. Again, it's the same as the 6P's which means decent quality photos.

Performance

We already know that the Snapdragon 808 isn't as quick as the 810 in the 6P, and that it has only 2GB of RAM versus the 6P's 3GB (and it's a similar story with the OnePlus 2, which at £289 is much cheaper than both Nexus phones). The graphs

Geekbench 3
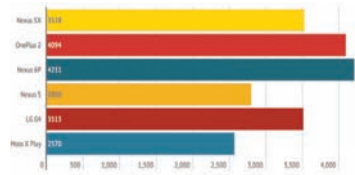
GFXBench Manhattan

GFXBench T-Rex
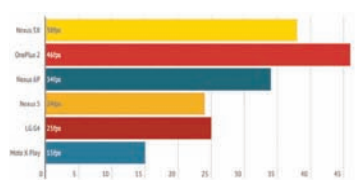
SunSpider*
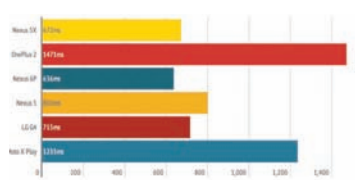
* lower is better

(right) show the difference in our benchmarks, but again, it's important to note that the lower screen resolution explains why the 5X's framerates are higher in GFXBench. In general use, the 5X is fast whether you're playing games, switching between apps, browsing the web or just navigating around Marshmallow. The battery life is very good, too, lasting a shade under seven hours in our tests.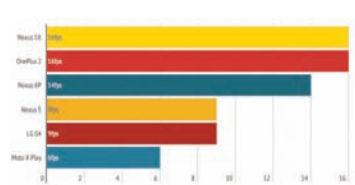 The new battery saving features in Marshmallow will also help if you need to eke out several hours when power is running low.

And there's support for fast charging using the included charger, giving up to seven hours of use from 10 minutes' charging – according to Google. But it's not Qualcomm Quick Charge 2.0 or 3.0. Like the 6P, it seems to be a proprietary system, so you'll need the official charger or a third-party USB-C charger that can output 5V/3A.

Software

Out of the box the phone runs Android 6.0 Marshmallow. It's similar to Lollipop but isn't exclusive to the 5X or 6P, of course. Existing Nexus devices will be upgraded shortly, including the Nexus 5. The benefit, as with any Nexus phone or tablet, is that

you get pure Android as Google intends it to be – no add on skins like Samsung's TouchWiz or HTC's Sense. Not only does it offer something of a blank canvas with which to customise Android to your heart's content, it means you don't have to worry about things like preinstalled apps which you may not be able to delete.

Verdict

The 5X is a fantastic phone overall, with excellent cameras, a good turn of speed and an excellent screen. But it's bigger than its predecessor despite the small increase in screen size, it has limited storage compared to the 6P and it lacks a couple of camera features due to the slower processor. The absence of wireless charging is another blow for some, but additions such as the fingerprint scanner will make it a great upgrade.

Specifications

- 5.2in Full HD screen
- Android 6.0 Marshmallow
- Qualcomm Snapdragon 808, six-core processor
- 2GB RAM
- 16-/32GB storage
- 12.3Mp rear camera with dual-tone LED
- 5Mp front camera
- Fingerprint scanner
- NFC
- 11ac Wi-Fi
- Bluetooth 4.2
- 2700mAh battery;
- 147x72.6x7.9mm
- 136g

Review:
Motorola Moto X Force

Flagship phone that's like the X Style on steroids

From £499 inc VAT • motorola.co.uk ★★★★☆

Not content with launching two new Moto X phones in 2015, Motorola has surprised everyone by quietly releasing a third: the Moto X Force – known as the Droid 2 Turbo in the US. And it's not just a revamped Moto X Style or Moto X Play with a shatter-proof screen: the Force has its own identity and specs and is the new Motorola flagship.

It starts with a 5.4in Quad HD screen, has 3GB of RAM and a Snapdragon Processor (clocked higher than the Moto X Style's) and a battery that's claimed to last a full two days. There are high-spec cameras, and 'TurboPower' which claims to provide 13 hours of use from just 15 minutes' charging. And unlike its siblings, it supports wireless charging out of the box.

Design

While similar to other Motorola phones, the X Force is subtly different in design. Instead of a constant radius at the back the bulk is quite flat, with more sharply angled edges. The aluminium frame is thicker, too, extending a few millimetres in at the sides before you get to the textured back cover.

Mobilefun.co.uk provided us with the base black ballistic nylon version, but you can use Motorola's Moto Maker to choose 'pebbled' leather in natural, cognac or black. There's also a soft grip option in more colours, but all are quite muted compared to the more vivid options you get with the Moto X Play.

You've also got the option of a white front with Light Silver frame, or black and Dark Gray. Then you can choose an accent colour which affects the camera surround on the rear and the top grille at the front. The white version is uglier than black, we think, but the fact that the front of the black version is largely featureless makes that ugly as well. It's not a great-looking phone like the Moto X Style.

The only option you can select which will change the £499 price is to go for 64- instead of 32GB of storage: that's an extra £35.

The bezels at the front are reasonably small, although there's quite a bit of space below the

screen with nothing going on: it's a shame Motorola didn't go for physical touch-sensitive buttons rather than on-screen buttons.

Unusually there are three grilles at the front. Only the bottom-right is a loud speaker. The top one is for phone calls, and the left-hand bottom grille appears to be only for show, since nothing comes out of it, although it could be an oversized microphone grille for symmetry.

There are five mics in total, with two on the rear for directional pick-up when recording videos.

What's missing is a fingerprint scanner: the current trend on the latest high-end Android devices. This isn't just annoying because it means you can't easily unlock your phone, but also because you won't be able to use it to authenticate purchases via Google Pay when it eventually arrives over here. You can use the in-built NFC with the Tap & Pay feature with certain apps, though.

If you're after a dual-SIM phone, it's frustrating that the combined SIM and microSD tray is marked as SIM1 / microSD or SIM2 but the software lacks any SIM management options. It's only in other territories that both SIM slots work in the Moto X Force.

Unlike some phones, this one sticks with Micro-USB. For some people that will be a relief as it's universally compatible, but the reversible USB-C connector is undoubtedly the future.

Display

The highlight feature is the screen. You'd be forgiven for assuming that Force meant that it's a screen which responds to pressure, like the new iPhones' 3D Touch screens. It doesn't. Instead, it's a special

five-layer screen that is intended to be unbreakable, and won't let you down even if you drop it.

Motorola calls is ShatterShield and it involves five components. At the base is an aluminium frame for strength. On top is a P-OLED screen that's flexible and can take an impact (the P stands for plastic). On top of that is a dual touch layer, dual because there are two touch-sensitive layers, so the lower-most will take over should the upper-most fail because of a drop. Covering that is the traditional glass you'd usually expect to see on any smartphone – Motorola calls this the 'interior lens'. On the very top is a glass screen protector, the 'exterior protective lens' which is becoming a more common accessory for popular smartphones. It works in the same way, in that it's a sacrificial screen protector that's also user replaceable.

Unlike sticking a glass protector on any other phone, the Moto X Force's 'exterior lens' is itself

protected by a plastic surround. In the box you get a dual-purpose SIM tray and screen protector removal tool. If you damage the protector, you can remove it by prying it up with the plastic tool. The plastic also helps you to align a new protector – it's impossible to stick it on squint.

With so many layers you might imagine that image quality or touch sensitivity is impaired, but it really isn't. Yes, if you look closely you can see that the screen protector's openings are marginally larger than the glass below around the grilles, but those who don't know it's there are unlikely to spot it.

Such is Motorola's confidence in the system that it offers a four-year warranty against the screen failing due to accidental damage. The glass screen protector isn't covered by it, so if you break that you'll have to pay for an official Motorola replacement (£20).

The screen itself is a 5.4in Quad HD AMOLED panel, a return to the technology used in the first two Moto X phones, but not in the second two – the Style and Play which use IPS screens. Quad HD means a resolution of 2560x1440 and at this size, it's a pixel density of 540ppi. It's bright enough at 578cm/m² – measured with our Spyder4 – but while some will love the oversaturated AMOLED colours others will think them overblown and inaccurate.

Performance

While the X Force is a great performer, it has launched at an awkward time. Qualcomm has already announced the Snapdragon 820 which will power many flagships next year. Plus, rival flagships which launched earlier in 2015 have already had

price cuts that makes them cheaper than the Moto X Force.

However, as it stands today, the X Force is a quick phone. It has basically the same setup as the Nexus 6P – Snapdragon 810 (at 2GHz), Adreno 430 and 3GB RAM – and performed similarly in our tests, managing 40fps in the T-Rex game test and 4455 in Geekbench 3.

In general use it also feels fast, and there are some neat Motorola additions including two hardware co-processors which enable the phone to respond very quickly to motion and voice commands. These tweaks (covered in more depth in the software section) make the phone more usable, such as the double-twist to launch the camera app when the phone is asleep, and a notification display when you wave your hand over the screen.

Motorola has also put a big battery inside (non-removable of course), and claims it will last a full two days. The actual amount of time it will go between charges will depend on what you're using it for, but we comfortably got over a day's use in our subjective testing. You might just get two

Geekbench 3
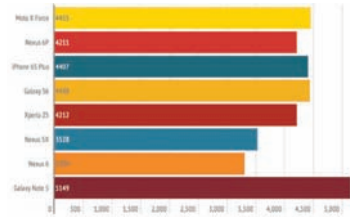
GFXBench Manhattan
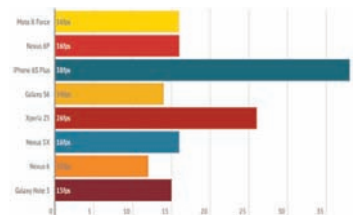
GFXBench T-Rex
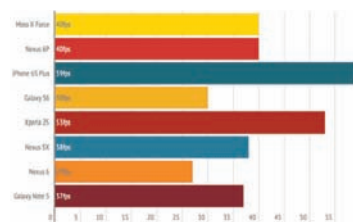
SunSpider*
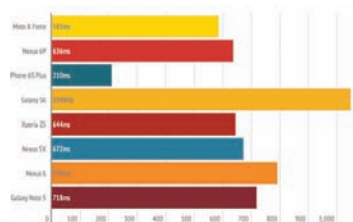
* lower is better

days if you use the X Force lightly, but intensive use will render that an impossibility.

In our battery rundown test, the result was lower than expected at just over five-and-a-half hours. The Nexus 6P lasted well over six hours in the test, and the 5X just over seven hours.

As well as wireless charging you get a 'TurboPower' charger in the box which really saves time over using a generic USB charger. For example, we connected it with the battery at 25 percent and 20 minutes later it was charged to over 60 percent.

Cameras

There's no change to the cameras compared to the Moto X Style and Play. That means 21Mp at the back and 5Mp at the front.

The range of shooting modes is different, as it doesn't shoot 1080p at 60fps like the X Style, but it records slo-mo in 720p, which is better than the 540p mode of the X Play. It can also record 4K video at 30fps, and supports HDR video in 1080p and 4K.

There are both front- and rear flashes, with the rear being a dual-tone colour correcting unit that's become common on many phones.

Photos are generally good, as are videos, but they're not quite on a par with the Nexus 6P or 5X. One of the main disappointments is the smearing of certain textures which appears to be the fault of the noise reduction system. In the photo of St Pancras (admittedly taken in less than perfect conditions) the roof tiles are sharp, but much of the brickwork is a smeary mess. So the lens and sensor are capable of capturing detail, but it won't necessarily make it through to the saved photo.

Software

Motorola keeps the stock Android interface, which we love, and adds useful extras throughout. As well as the Moto app which we'll come to in a minute, there's Attentive Display which keeps the display on when you're looking at it, overriding the timeout if necessary. That's handy when you're reading something but not interacting with the phone.

With Moto, you can record a custom phrase which launches the hands-free mode that you can use to access Google Now as well as reading out emails and text messages. There's also a driving mode which automatically reads those aloud, and a night mode which you can configure to allow only priority interruptions to alert you.
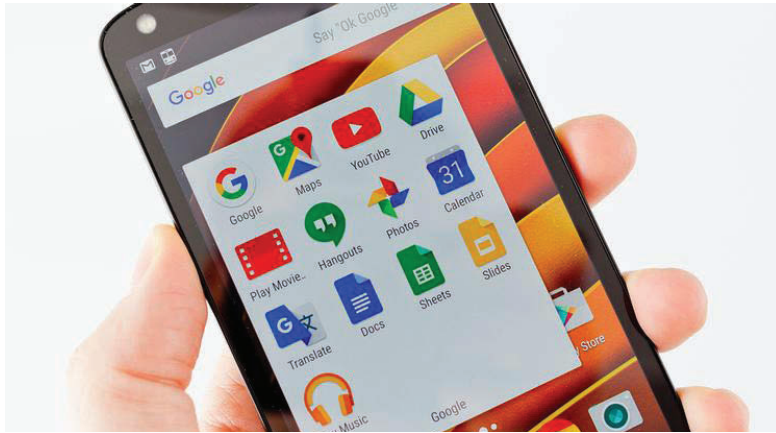
Moto Display is configurable to show notifications from only certain apps and thanks to the AMOLED display, it uses very little power as it only lights up the necessary pixels.

Actions include the double-twist for camera, but you can also double karate chop to turn on the torch. Merely moving your hand over the screen displays notifications when it's asleep, and picking up the phone does the same thing. And like Siri on an iPhone, you can set Moto Voice to work when you lift the phone to your ear. Then you can say a command and get a reply more discreetly.

The fact you get Android Lollipop out of the box is bad timing, but Motorola has confirmed that an update to Marshmallow will be available "soon".

Verdict

There's a clear reason to buy the Moto X Force: the shatter-proof screen. Whether you're accident prone, or simply need a phone that's not going to break on you at a critical moment, the X Force should be

a compelling choice. It's a great phone in its own right, too. Powerful and with a top-quality screen and decent (if imperfect) cameras, you can't ask for much more at this price. Except, perhaps, a fingerprint scanner and use of the second SIM slot for those that want it. Battery life is good, if not quite as long as Motorola claims, and it charges speedily with the included adaptor. Ultimately, the Moto X Force is a little on the expensive side for what you get, but the unique mix of additions to Android and the tough screen will make it worth it for some people.

Specifications

- 5.4in (2560x1440, 540ppi) AMOLED display, Quad HD
- Android 5.1.1 Lollipop
- 2GHz octa-core Qualcomm Snapdragon 810 processor (MSM8994)
- Adreno 430 GPU 3GB LPDDR4 RAM
- 32- or 64GB built-in storage
- Up to 2TB microSD card slot
- 3760mAh battery with TurboPower (PMA and Qi wireless charging)
- Water repellant nano coating
- 4G LTE
- 802.11ac dual-band Wi-Fi
- 21Mp rear camera with Dual-LED flash
- 5Mp front-facing camera with LED flash
- Bluetooth 4.1 LE
- Front-facing mono speaker
- NFC
- GPS
- 1149.8x78x7.6-9.2mm
- 169g

Review:
Samsung Galaxy Edge+

Bigger screen and more memory, but not better value

From £629 inc VAT • samsung.com/uk ★★★★☆

Samsung made a splash in the smartphone market with the curved screen Galaxy S6 Edge. Well there's an even bigger model now so here's our full Samsung Galaxy S6 Edge+ review.

The original Galaxy S6 Edge was one of the most expensive phones we've ever seen at launch price. Well the Edge+ beat it with Samsung initially selling it at £749.

For a while it was reduced to a cheaper price than the smaller Edge at £599 but it's now £629 from the official Samsung store. That's not too bad but it's still one of the most expensive phones around. However, head over to Amazon and you can pick one up for just £519, a relative bargain. That's £100 cheaper than the iPhone 6s which comes with half the storage but you need to consider that the Galaxy S6 can be purchased for under £340 which can only be described as a bargain.

Design

There's not a great deal to say about the design and build of the Galaxy S6 Edge+ since it is really just a bigger version of the original model. It retains the same look and feel compromising of a rounded metal frame and glass on the front and back.

It's one of the most stylish phones around but we haven't found it as comfortable as the regular Galaxy S6 due to the slightly sharp metal running down either side in order to house the curved edges of the screen - this hasn't changed much on the Edge+. It's still thin at 6.9mm but the Edge+ model being even larger makes it all the more unwieldy.

Despite increasing the screen size, Samsung has managed to make the Edge+ 0.1mm thinner than the Edge. There's a larger battery too and yet the phone is only around 20g heavier. This is some impressive engineering from Samsung.

Hardware

As alluded to, the Galaxy S6 Edge+ is larger than the original model. If you thought a 5.1in screen was a bit small, the Note range is no longer your only option

if you're a Samsung devotee. The Edge+ features a 5.7in display which matches that of the new Galaxy Note 5 – it's quickly becoming the standard size for larger phones with the new Nexus 6P also offering this screen size.

The display still uses Samsung's Super AMOLED technology and uses a Quad HD resolution (1440 x 2560). This does mean a drop in pixel density from 577- to 518ppi but we're talking seriously high numbers here so it's still awesomely crisp.

The Galaxy S6 Edge+ is one of a handful of phones announced with 4G of RAM which is plenty of memory - an extra 1GB compared to the Edge which power users may find helpful. On the storage front you might be sad to hear there's still no microSD card slot and the 128GB model has been dropped from the line-up, leaving just 32- and 64GB choices. As mentioned earlier, getting 32GB as standard is good when compared with devices like the iPhone 6s.

Samsung has stuck with the same Exynos 7420 processor which is unsurprising since the smaller S6 Edge hasn't been around for too long. The chip is 64-bit, octa-core (quad-core 1.5GHz Cortex-A53 and quad-core 2.1GHz Cortex-A57) plus there's a Mali-T760MP8 GPU. Performance seems just a slick as the Galaxy S6 Edge and the benchmark results reflect this.

What's even more impressive than the above numbers is the battery life on offer here. In our test the Galaxy S6 Edge+ latest a whopping eight hours and 39 minutes with a score of 5192. The nearest contender to date is the Honor 7, which managed just over seven hours.

The larger physical size means there's room for a 3000mAh battery inside and the Edge+ also offers wireless charging which is something we always want to see from a high-end handset. We didn't think Samsung would drop any of its usual extra features so while the Galaxy S6 Edge+ has a fingerprint scanner in the home button and a heart-rate monitor, the IR blaster has been dropped with the firm promoting new features such as 'Live Broadcast' although we don't really see the need for this with apps like Periscope. There's also 11ac Wi-Fi, NFC, Bluetooth 4.1 with aptX, GPS and 4G LTE support.

With such high-end specs on the existing Galaxy S6 models, it's not really a shock that things haven't changed for the Edge+. This means there are still top-notch cameras at 16Mp at the rear with optical image stabilisation (it still sticks out a few millimetres but is one of the best on any smartphone), a single LED flash and support for 4K video at 30fps. There's also still a decent 5Mp camera at the front.

With so many specs remaining the same, the key difference is the screen size and battery

life (although more memory is welcome and it's a shame to see the IR blaster gone) here so Samsung is delivering for all of you out there with a craving for an S6 Edge in a larger model.

Software

The Galaxy S6 Edge+ comes preloaded with Android 5.1.1 Lollipop and Samsung's own TouchWiz interface – as you would expect.

What we wanted to find out is whether Samsung has made any advancements or upgrades with the edge screen technology. We were somewhat disappointed with the original S6 Edge since you had to choose which side you wanted to use and there was limited functionality.

Unfortunately, not much has changed but you can position the tab with to access the People Edge where is most comfortable on the edge. There's also the added feature of accessing your most used apps with via the People Edge on top of contacts.

We were hoping for more.

There's little in TouchWiz that's stock Android, it's really just the recent apps menu. Otherwise Samsung has opted for its own way of doing things. That's fine for fans of the UI but others may be put off. Bloatware is much less of an issue these days but the Edge+ comes with a number of apps which can't be uninstalled. This includes a folder

Geekbench 3
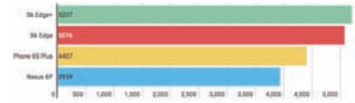
GFXBench Manhattan
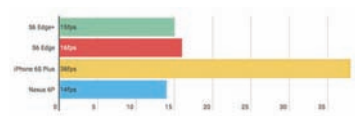
GFXBench T-Rex
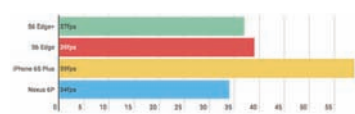
SunSpider*
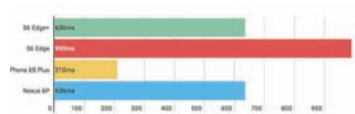
* lower is better

full of Microsoft apps and Samsung's own such as
S Health and S Voice.

Verdict

With more memory and excellent battery life the
Galaxy S6 Edge+ is a powerful phone and a great
choice if you want a large screen. However, it's
expensive, unwieldy and Samsung has dropped the
IR blaster and hardly added anything to the edge
screen. With the regular S6 available for less than
£340 it's a no-brainer.

Specifications

- 5.4in(2560x1440, 540ppi) AMOLED display
- Android 5.1.1 Lollipop
- 2GHz octa-core Qualcomm Snapdragon 810
  processor (MSM8994)
- Adreno 430 GPU
- 3GB LPDDR4 RAM
- 32- or 64GB built-in storage
- Up to 2TB microSD card slot
- 3760mAh battery with TurboPower (PMA and Qi
  wireless charging)
- Water-repellant nano coating
- 4G LTE
- 802.11ac dual-band Wi-Fi
- 21Mp rear camera with Dual-LED flash
- 5Mp front-facing camera with LED flash
- Bluetooth 4.1 LE
- Front-facing mono speaker
- NFC
- GPS
- 149.8x78x7.6-9.2mm
- 169g

Review:
HTC One A9

HTC's Marshmallow handset looks great, but is too pricey

£419 inc VAT • htc.com/uk ★★★⯪☆

HTC has unveiled a new smartphone to sit alongside its flagship model, the One M9. The Taiwanese firm doesn't have an official price for the One A9 on its website, instead it points visitors toward retail partners. The odd thing is that

they all have different prices, ranging from £419 all the way up to £479.

A £60 price difference at launch is a bizarre situation, but worse is that this is a much higher price than we'd expected for the A9.

We know it's brand new and the price will drop over time like most phones, but for now it means that the flagship One M9 is available for far less. You can pick it up from Amazon for £369, and it's probably available for less if you hunt around.

Since the A9 is by no means a successor to the M9, we're not sure why HTC is thinking consumers will buy it instead. When you compare it to others on the market, things look even worse, with similarly specified phones, such as the Google Nexus 5X (page 37), the OnePlus 2 and Motorola's Moto X Play, all available for much less – £339, £239 and £279 respectively.

Design

Let's tackle the elephant in the room straightaway. The One A9 looks very similar to the Apple iPhone 6/6s. The shape, feels nice in the hand, although a little slippery, and the HTC is nice and thin at 7.26mm. A weight of 143g is light, too.

The phone is available in Carbon Grey and Opal Silver, with Deep Garnet and Topaz Gold options expected to be available before the end of the year. We love the red model, though gold seems to be the in vogue at the moment.

Compared to the One M9, the main addition to the A9 is the fingerprint scanner below the screen. It's similar to the OnePlus 2's in that you can use it to unlock the phone and as a home key.

Build quality is excellent and it's the little details that combine to make this a desirable phone. For example, the ridges on the power button make it easier to use and find with your finger. We also love the smooth edge of the glass, which sits flush with the metal. It's amazing how a slightly sharp edge gets on your nerves over time, but there's nothing like that here.

Hardware

The One A9 offers the same screen size and resolution as the M9 – 5in and Full HD. The display is crisp, offers good viewing angles, colours that pop out at you and excellent contrast thanks to the AMOLED technology. You shouldn't, however, need to pay over £400 for a screen of this quality.

You also get lower grade specs under the covers with the One A9. It has a Qualcomm Snapdragon 617 octa-core processor, 2GB of RAM and 16GB of internal storage. Luckily there's a microSD card slot which, in theory, can take up to 2TB.

The benchmark results are not great (see opposite), but don't read too much into these as the One A9 performs perfectly well in everyday use. That's not to say it's the nippiest around, but equally it didn't leave us waiting for things to load. As usual, it's the camera app that can take a couple of seconds to boot.

HTC hasn't added its BoomSound front-facing speakers, which is a shame. The One A9 does support High Res 24-bit audio though, including upscaling and a DAC (digital to analogue converter).

Returning to the fingerprint scanner, its positioning isn't the best and we prefer rear-mounted readers or

the Xperia Z5's, which is integrated into the power button on the side. This way your finger or thumb falls naturally on the scanner instead of having to reach for it. Next to the bottom-facing speaker, which provides average sound quality, is a regular Micro-USB port rather than the new reversible Type-C. That said, the phone supports Quick Charge 2.0 for topping it up quickly. With the battery fully charged, you'll get pretty good battery life. Our Geekbench 3 test resulted in a respectable time of six hours 24 minutes, which puts it in the top bracket of performers.

Other connectivity options include NFC, 11ac Wi-Fi, Bluetooth 4.1 with aptX and 4G LTE support – exactly what we'd expect for a phone this expensive. Wireless charging would be nice, though.

Geekbench 3

GFXBench Manhattan

GFXBench T-Rex

SunSpider*

* lower is better

Cameras

On the front, the A9 has the same UltraPixel camera as the M9. This is pretty good, but by no means the best. The rear camera is a 13Mp Sony sensor with a dual-tone LED flash. Image quality is very good and a bonus is that the One A9 offers optical image stabilisation, an aperture of f/2.0 and support for shooting in Raw. Once again, the problem here is that you can get phones with similarly decent cameras for a lot less. HTC touts hyperlapse video
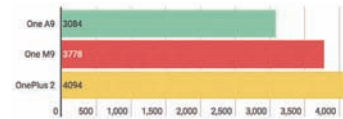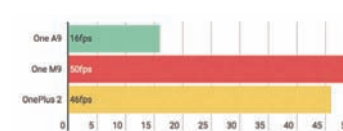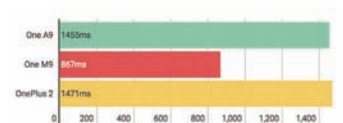
(timelapse) as a key feature that can be applied to any video in your library.

Software

Coming later in the year than other smartphones has an advantage – the One A9 comes with Android 6.0 Marshmallow, making it the first non-Nexus device to do so. It's a very different experience to a Nexus device, though, as the phone also comes with HTC's Sense user interface. This isn't a bad thing and existing HTC users might not want it any other way. We've all got our favourite Android skins. That said, HTC uses stock Android elements, such as the drop-down notification bar, including quick settings, and the card Rolodex-style recent apps, so Sense is closer to stock Android than previously.

Running Marshmallow also offers other advantages, such as 'adoptable storage', which means the SD card can be viewed as internal storage. There's also Doze mode, which improves standby battery life, and Now on Tap for quickly accessing Google Now.

Sense looks stylish on the One A9 and you'll get the same experience as you will on an M9, with features such as Themes; Sense Home, a widget that displays different app icons; as well as suggestions, based on where you are. BlinkFeed and Zoe are still key parts of the system.

Verdict

We prefer the design of the One A9 to that of the flagship One M9 and it does have a decent fingerprint scanner. These are not, however, enough to justify buying it instead of its bigger brother or

various even cheaper Android rivals. HTC has made a nice phone, but its price tag is too high.

Specifications
- 5in AMOLED Full HD
- Android 6.0 Marshmallow
- Qualcomm Snapdragon 617 octa-core processor
- 2GB RAM
- 16GB internal storage
- MicroSD card slot (up to 2TB)
- 13Mp camera with OIS and dual-tone LED flash
- UltraPixel front camera
- NFC
- Fingerprint scanner
- 4G LTE support
- 2150mAh non-removable battery
- 145.8x70.8x7.3mm
- 143g

Review:
OnePlus X

Possibly the best value smartphone of 2015

From £199 inc VAT • oneplus.net ★★★★☆

OnePlus has made a name for itself by offering phones at far lower prices than you would expect if you looked at the spec sheet and images of the device. This tradition continues with the X, which is the firm's cheapest offering to date.

The OnePlus 2 is a steal at just £239, but the X is even more affordable at £199. There is little competition below the £200 mark in the smartphone

market, but the OnePlus X does have some rivals. The Motorola Moto G (third generation), for example, which offers pretty decent specs for just £159 as standard, but doesn't offer the same level of design and build.

At this price, you're probably already interested in getting your hands on one, but that's where you may run into a small problem. Like previous One Plus phones, you need an invite to buy one, which is a bit of a spanner in the works.

Third-party vendors sell the X without you requiring an invite, but OnePlus does not support or advocate people buying its products via unofficial third-party vendors.

Design
OnePlus has thought long and hard about the look and feel of the X and has done a sterling job. The metal frame, with its almost nano-sized ridges and dark glass front and back, features a bevelled edge adding both style and comfort.

It reminds us of the gorgeous Sony Ericsson C902 from yesteryear, and there's almost no faulting the OnePlus X in this area. It's thin and light, which is a big improvement on the pretty brick-like OnePlus 2 – just 6.9mm and weighing 138g.

The Alert Slider button on the left side of the phone lets you switch between three different notification profiles. This is handy when you want to quickly make sure your phone stays quiet or doesn't with minimal effort. We say almost because the glass back makes for a slippery experience, whether it be sliding off the arm of your sofa or moving gradually across a flat surface when you're trying to scroll.

Something that may solve this is OnePlus' range of cases. Comparing the X to the Moto G there's no waterproofing here, so it's more about style and we're fine with that.

We took a look at the Onyx black glass model, but there is also a limited edition ceramic version if you happy to pay more and deal with the increased weight of 160g.

Hardware

Treating the this phone as a mini version of the OnePlus 2, there are a number of downgrades and that makes a large amount of sense since the X is a cheaper option.

A major difference is that the screen is smaller and we're pleased that the firm has chosen to offer a device more compact than its others. After all, not everyone wants a heavy 5.5in handset. The resolution remains at Full HD though, so it's got a higher pixel density. Using AMOLED technology, we're impressed with the display's deep blacks, great viewing angles and the brightness on offer.

A 2.3GHz quad-core Qualcomm Snapdragon 801 processor seems to be a cost-cutting measure since the chip is now out of date. Accompanying this is 3GB of RAM and although this combination doesn't make for exciting reading, we've found performance to be smooth. The main thing is that the chip isn't 64-bit. OnePlus has fitted a 2525mAh battery inside the X and we recorded a benchmark result of four hours 57 minutes.

There's just 16GB of internal storage available here – you'll get around 11GB to play with after taking into account the preinstalled software.

Thankfully, there is a microSD card slot, so you can add up to 128GB more. It's worth noting that the OnePlus X is dual-SIM and putting a memory card in takes up one of those slots, so you can't have all three in at the same time.

At this price, there have to be cuts somewhere, and unlike the OnePlus 2, the X doesn't have a fingerprint scanner or reversible USB Type-C. It also lacks 11ac Wi-Fi and NFC, which is a shame for anyone wanting to use payment systems or other near field benefits.

The OnePlus X has a 13Mp camera at the rear with an LED flash. This shoots in a 4:3 aspect ratio by default (as does the front camera), which is novel, and the app is simplistic. There's no optical image stabilisation, but there is phase detection autofocus. The results are good, but not great and we've seen much better 13Mp cameras. At the front is an 8Mp snapper, which is good but not as detailed and sharp as we normally find at this resolution.

Geekbench 3

OnePlus X	2524
OnePlus 2	4094
Moto G	1628

GFXBench Manhattan

OnePlus X	10fps
OnePlus 2	16fps
Moto G	4fps

GFXBench T-Rex

OnePlus X	23fps
OnePlus 2	46fps
Moto G	10fps

SunSpider*

OnePlus X	1329ms
OnePlus 2	1471ms
Moto G	1344ms
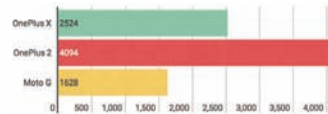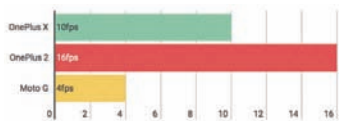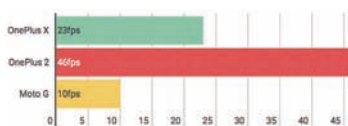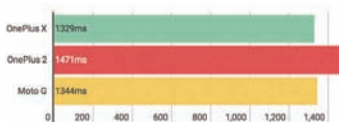
* lower is better

Software

The software is another strong point as the phone is running the firm's own Oxygen operating system, which is based on Android 5.1 Lollipop. We would have preferred the latest 6.0 Marshmallow but it's not the end of the world, partly because

OnePlus has added similar features. Although it might sound like a modified user experience, this isn't the case. Oxygen OS has a stock Android look and feel. This means you get pretty much all the same elements as a Nexus device, including the notification bar and recent apps.

Motorola offers a slightly more stock experience with Google Now a swipe away from the homescreen. Oxygen OS instead has Shelf, a method of accessing your most used apps and contacts. Another bonus is the lack of bloatware, so you get Google's range of apps and not much more, giving you a nice blank canvas to get started with.

You can choose onscreen navigation buttons, the usual Android ones, but it's probably worth opting against this during setup. The X has touch-sensitive buttons below the screen, which can be utilised, even if they are hard to see with no backlight. Each one can also be assigned a long press- and double-tap action which is great.

We mentioned that you get Marshmallow features with the OnePlus X, so you can adjust individual app permissions and you can rearrange the quick settings tiles. You also get nifty features such as gestures (double-tap to wake the screen, draw a zero to open the camera, and so on) and customisation including the accent colour of the interface and the LED notification light.

Verdict

The OnePlus X is the best value smartphone of the year. We love the premium design in a smaller form factor to the firm's other phones. Software is a strong point and you get a gorgeous screen.

Specifications

- 5in full-HD (1920x1080, 441ppi) AMOLED, Gorilla Glass 3
- Oxygen OS based on Android 5.1.1 Lollipop
- 2.3GHz Snapdragon 801, quad-core
- Adreno 330
- 3GB LPDDR3 RAM
- 16GB, plus up to 128GB microSD
- 13Mp rear camera, f/2.2 aperture, 1080p video/120fps slo-mo at 720p
- 8Mp front camera, f/2.4 aperture
- Gyroscope, proximity, ambient light, hall sensor
- 2525mAh non-removable lithium-polymer battery
- Micro-USB charging port
- 4G bands 3, 7 and 20;
- Dual-nano-SIM
- 802.11b/g/n Wi-Fi
- Bluetooth 4.0
- GPS
- GLONASS
- 3.5mm headphone jack
- FM radio
- 140x69x6.9mm
- 138g (Onyx), 160g (Ceramic)

Review:
Xiaomi Mi 4C

Mid-range phone that's half the price of the Nexus 5X

From £159 inc VAT • mi.com/en   ★★★½☆

The Xiaomi Mi 4C looks on paper (and in the flesh) to be a fantastic device, half the price of the similarly specified Nexus 5X (page 58) with performance that can be just as fast. But 'can be' is the key point here, as overheating issues plagued our review sample.

Xiaomi doesn't officially sell its phones in the UK, so if you want to get hold of one you'll need to buy it from a Chinese website that will ship to the UK.

However, be warned that if you are shipping this phone to the UK from China you may also have to pay import duty.

Design

For a £150 phone made of plastic, the Mi 4C is good-looking. A thin slab just 7.8mm thick, it has a soft-touch coating that feels great in the hand. There's no creaking or flexing – this phone feels very well made. The screen-to-body ratio is high, with some pretty slim bezels. For a phone that has a 5in screen, the Mi 4C is extremely well proportioned, just 138.1x69.9mm. It's also lightweight, at 132g.

Available in black, white, pink, blue or yellow the Mi 4C can be elegant or fun in its appearance.

You'll find buttons and connectors in all the usual places, with a metal-effect volume rocker and power button high up on the right edge, a 3.5mm headphone jack and IR blaster at the top, a dual-SIM tray that pops out from the left edge and a USB-C port on the bottom. Turn over the phone and there's a 13Mp camera with two-tone flash in the upper left corner, and a speaker grille that is slightly raised off the surface of a desk by a small plastic protrusion to help prevent the sound being muffled.

The screen is a plus point, with a 5in full-HD (1920x1080 pixels) IPS panel with a sharp pixel density of 441ppi. Contrast is excellent, though the screen could be brighter.

Hardware

The Xiaomi Mi 4C has the same core hardware as the Nexus 5X, with a 1.8GHz hexa-core Qualcomm Snapdragon 808 64-bit chip, Adreno 418 graphics

and 2GB of LPDDR3 RAM (3GB in the 32GB Advanced model). Both feature full-HD IPS screens, although the Nexus' is slightly larger at 5.2in against the Xiaomi's 5in. On paper, performance should be very closely matched.

We found performance to be very good and to be right up there with the Nexus 5X. In Geekbench 3, for example, we measured 1251 points in the single-core component and 3233 in multi-core. By comparison, the Nexus 5X scored 1240 single-core and 3528 multi-core. But each time we ran Geekbench 3, the Mi 4C began to heat up and our results very quickly fell off a cliff – to the extent that we were unable to get higher than 650 points single-core and 2027 multi-core.

We also ran AnTuTu on the Xiaomi Mi 4C from cold and recorded a very good 54,250 score. When the phone began getting warm this dropped to 44,818 points.

We saw the same results in every benchmark we ran. In SunSpider (using Google Chrome) we recorded 496ms cold, which is incredibly good, but 1369ms warm (lower is better in this test). The Nexus 5X averaged 672ms.

We also ran the intensive GFXBench graphics test. The 5X completed this test with results of 16fps in Manhattan and 38fps in T-Rex. Despite housing the same processor and graphics chip, the Xiaomi Mi 4C could handle only 15fps in Manhattan and 34fps in T-Rex. As it became warm, this dropped to 11fps in Manhattan and 23fps in T-Rex.

These aren't small differences we're talking about here. It's important to point out that the Xiaomi Mi 4C feels fast and responsive in real-world use, but

our benchmark results show how performance can rapidly deteriorate as you use the phone.

It's not all doom and gloom when it comes to performance, though. Despite its dinky shell the Xiaomi Mi 4C is fitted with a generous 3080mAh battery that supports Quick Charge over USB-C (and is supplied with a compatible charger). It may not be removable, but you should get two days of use out of this Android phone.

Connectivity

The Mi 4C can accept two Micro-SIM cards. It's a dual-standby model, although both SIM slots can support 4G. Unlike some other Chinese dual-SIM phones we've seen, you cannot use the second SIM slot to insert a microSD card.

When buying a phone from abroad you should always check the frequency bands it offers to ensure that it will be compatible for your home network.

The Xiaomi Mi 4C does not support the 800MHz LTE band, which means O2 customers (and customers of operators that use O2's network, such as Giffgaff) will not be able to use 4G data. The 1800MHz and 2600MHz 4G LTE bands are both covered.

A standout feature here is the IR blaster. The Mi 4C also supports 802.11ac Wi-Fi, Bluetooth 4.1, GPS and GLONASS, OTG and Miracast. NFC is not supported, and neither is there a fingerprint scanner, but there is a reversible USB-C data transfer and charging port.

Cameras

The Xiaomi Mi 4C is fitted with a 13Mp Sony IMX 258 camera with phase-detection autofocus and a two-tone flash at the rear, and a 5Mp front camera. You can switch between the two with a swipe up or down on the screen.

The selfie camera on the whole works well. However, we noticed in our testing it will try to work
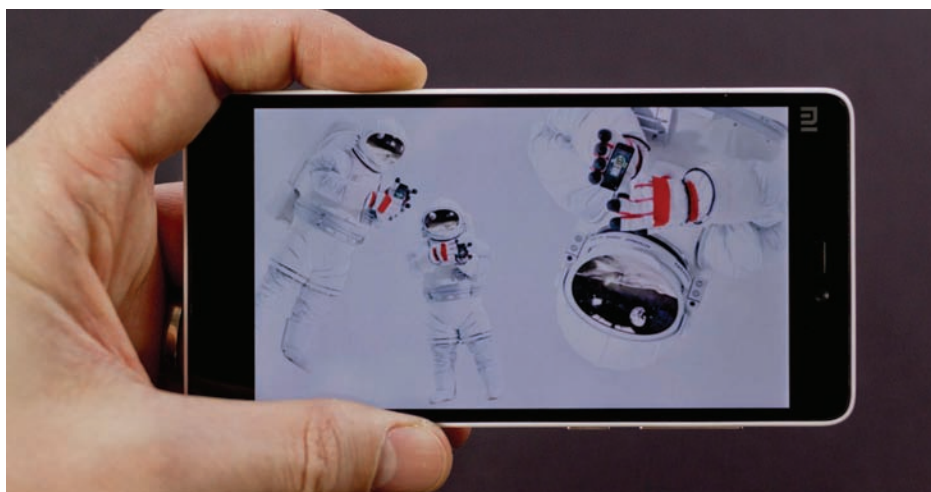
out how old you look in the shot. And it had some difficulty in deciding whether it was looking at a 25-year-old female or a 50-year-old male.

Real-time filter previews are accessible with a swipe in from the right side of the screen. Swipe in from the left to access all the usual shooting modes including HDR, Panorama, Fish eye, Tilt-shift and Beautify. In Manual mode, you can control the white balance, focus, exposure time and ISO. Video recording tops out at 1080p. Our test shots from the Xiaomi Mi 4C were reasonably good, full of detail and with great colours. HDR improves things, and we'd recommend leaving it on.

Software

The Xiaomi Mi 4C runs the MIUI 7 operating system, which is based on Android 5.1 Lollipop. Out of the box, we had an awful first impression. Before the phone was shipped to us an unofficial version of MIUI 7 had been preinstalled (with the version number 77.00.44.00). We expect this is because out of the box Xiaomi phones don't run Google apps, including the Google Play store.

Unfortunately, it's nothing like proper MIUI 7, and is plagued with third-party apps that pop up when you don't need them to and all manner of adverts. The good news is its really easy to install the official version of MIUI 7 and then sideload Google apps. Here's how:

1. Go to tinyurl.com/nmqsmn9 and download the latest stable ROM to your PC or Mac.
2. Plug the Mi 4C into a computer using the USB-C cable. Open a file manager window to browse its

contents and drop the downloaded file on to its internal storage.

3. Open the Settings menu on your phone and scroll down to About phone. At the bottom of the screen you'll see a System updates option; tap this.

4. Tap the three dots at the top right of the screen and select 'Choose update package'. Browse to the downloaded file on your phone and follow the instructions to install it.

5. When our phone rebooted some of the features that had previously been preinstalled were still present, so we performed a factory reset (Settings, Additional Settings, Backup and reset, Factory data reset, enable Erase stored content, Reset phone). This will wipe the Google apps from the phone, but it's easy to get them back.

6. Back on your PC or Mac download the Google Installer apk from tinyurl.com/py6bfnr.

7. As before, plug the Mi 4C into your computer, open a file browser and drop the downloaded file into the Downloads folder.

8. On the phone you should now open the File Explorer app (which is in the Tools folder on the home screen). You should see the downloaded apk file at the top of your recent activity, or you can look within the Downloads folder. Tap on the download. It's a third-party app, so MIUI 7 will warn you about installing such things – wait for it to count down from 10 and you can then click 'Allow once'.

9. Once installed you'll see a list of Google apps you can install, including the Play Store. You will likely find it will prompt you to download and install the Google Services Framework before you can install the Play Store, so accept this installation when prompted.

10. Following our installation of the Play Store we found some apps within the store were reported as not being compatible with our device. However, it's easy to search online for their apk file and then install it to the Mi 4C in exactly the same way you just installed the Google Installer apk.

Having set up our Mi 4C with MIUI 7 as it was intended, our experience with the phone was infinitely better, and we did begin to see what the fuss is all about with Xiaomi phones. However, it has to be said there are a lot of preinstalled software on this device.

It is a nice UI, though, with plenty of customisations. In common with iOS there's no app tray, which means everything is visible on the home screen. It's easy to group apps into folders

by dragging and dropping them on top of each other, though. A pinch on the home screen brings up options to move apps, add widgets and alter the wallpaper and effects (the transitions as you move between home screens). A selection of Themes are also available from the Settings menu.

Pull down from the top of the screen and rather than your quick settings (these are available with a swipe from the right) you'll find recent notifications.

Verdict

On paper the Xiaomi Mi 4C is an excellent mid-range Android phone, with a fantastic spec for the money. However, overheating is a problem, and the issues we experienced with software out of the box make it difficult to recommend to the less technically-minded.

Specifications

- 5in full-HD (1920x1080, 441ppi) IPS touchscreen with Sunlight display

- MIUI 7 (based on Android 5.1 Lollipop)
- 1.8GHz Snapdragon 808 64-bit hexa-core chip
- Adreno 418 graphics
- Edge tap
- 16GB of storage and 2GB of LPDDR3 RAM or 32GB of storage and 3GB of LPDDR3 RAM
- Dual-SIM dual-standby (both 4G Micro-SIM, but no support for 800MHz 4G);
- Dual-band 802.11ac Wi-Fi
- Bluetooth 4.1
- GPS
- OTG
- IR blaster
- 13Mp Sony IMX258 camera with two-tone flash, phase-detection autofocus and 0.1s autofocus
- 5Mp front camera
- 3080mAh battery
- USB-C with Quick Charge support
- 138.1x69.6x7.8mm
- 132g

Best smartphones

	1 Samsung Galaxy S6	2 Google Nexus 6P	3 Apple iPhone 6s Plus	4 Samsung Galaxy Note5	5 LG G4
Price	£349 inc VAT	£449 inc VAT	£619 inc VAT	£600 inc VAT	£500 inc VAT
Website	Samsung.com/uk	Google.co.uk	Apple.com/uk	Samsung.com/uk	Lg.com/uk
Build rating	★★★★½	★★★★½	★★★★½	★★★★½	★★★★☆
Features rating	★★★★½	★★★★½	★★★★½	★★★★☆	★★★★☆
Performance rating	★★★★½	★★★★☆	★★★★½	★★★★½	★★★★☆
Value rating	★★★★☆	★★★★½	★★★☆☆	★★★★☆	★★★★½
Overall rating	★★★★½	★★★★½	★★★★½	★★★★½	★★★★☆
OS (out of box)	Android 5.0 Lollipop	Android 6.0 Marshmallow	iOS 9	Android 5.1.1 Lollipop	Android 5.1 Lollipop
Processor	2.1GHz Exynos 7420	Qualcomm Snapdragon 810	A9	2.1GHz Exynos 7420	Snapdragon 808 six-core
RAM	3GB	3GB	2GB	4GB	3GB
Storage	32/64GB	32/64/128GB	16/64/128GB	32/64GB	32GB
MicroSD support	✗	✗	✗	✗	Up to 128GB
Graphics	Mali-T760 GPU	Adreno 430	M9	Mali-T760MP8	Adreno 418
Screen size	5.1in	5.7in	5.5in	5.7in	4.5in
Screen resolution	1440x2560	2560x1440	1920x1080	720x1280	1440x2560
Pixel density	577ppi	518ppi	401ppi	518ppi	538ppi
Screen technology	Super AMOLED	Quad HD capacitive	IPS	Super AMOLED	IPS
Front camera	5Mp	8Mp	5Mp	5Mp	8Mp
Rear camera	16Mp, LED flash	12.3Mp, LED flash	12Mp, LED flash	16Mp, LED flash	16Mp
Video recording	4K	4K	4K	4K	4K
Cellular connectivity	4G	4G	4G	4G	4G
SIM type	Nano-SIM	Nano-SIM	Nano-SIM	Nano-SIM	Micro-SIM
Dual-SIM as standard	✗	✗	✗	✗	✗
Wi-Fi	802.11a/b/g/n/ac, dual-band	802.11a/b/g/n/ac, dual-band	802.11a/b/g/n/ac, dual-band	802.11a/b/g/n/ac, dual-band	802.11a/b/g/n/ac, dual-band
Bluetooth	Bluetooth 4.1	Bluetooth 4.2	Bluetooth 4.2	Bluetooth 4.2	Bluetooth 4.1
GPS	GPS, Glonass	A-GPS, Glonass	A-GPS, Glonass	A-GPS, Glonass	A-GPS, Glonass
NFC	✓	✓	✓	✓	✓
USB OTG	✓	✓	✓	✓	✓
Extra features	Heart-rate sensor, fingerprint scanner	Fingerprint scanner	Fingerprint scanner	Heart-rate sensor, fingerprint scanner	24-bit/192kHz audio, rear key
Geekbench 3.0 (single)	1347	Not tested	2527	1497	Not tested
Geekbench 3.0 (multi)	4438	3939	4407	Not tested	3513
SunSpider	1048ms	636ms	210ms	718ms	715ms
GFXBench: T-Rex	30fps	34fps	59fps	37fps	25fps
GFXBench: Manhattan	14fps	14fps	38fps	15fps	9fps
Battery	2550mAh, non-removable	3450mAh, non-removable	Lithium-on	23000mAh, non-removable	3000mAh removable
Dimensions	143.4x70.5x6.8mm	159.3x77.8x7.3mm	158.2x77.9x7.3mm	153.2x76.1x7.6mm	64.9x127x8.6mm
Weight	138g	178g	192g	171g	155g
Warranty	1 year	1 year	1 year	1 year	1 year
FULL REVIEW	TINYURL.COM/PC2KOYQ	TINYURL.COM/NABSV4E	TINYURL.COM/OYRA5MX	TINYURL.COM/OCQAJPL	TINYURL.COM/ORQ82MS

Best budget smartphones	**1** Vodafone Smart Ultra 6	**2** Motorola Moto E 4G 2015	**3** Vodafone Smart Prime 6	**4** Wileyfox Swift	**5** EE Harrier Mini
Price	£125 inc VAT	£109 inc VAT	£79 inc VAT	£129 inc VAT	£99 inc VAT
Website	Vodafone.co.uk	Motorola.co.uk	Vodafone.co.uk	Wileyfox.com	EE.co.uk
Build rating	★★★★½	★★★★☆	★★★★½	★★★★☆	★★★★☆
Features rating	★★★★½	★★★★☆	★★★★☆	★★★★☆	★★★½☆
Performance rating	★★★★½	★★★★☆	★★★★★	★★★½☆	★★★½☆
Value rating	★★★★★	★★★★★	★★★★☆	★★★★½	★★★★½
Overall rating	★★★★½	★★★★☆	★★★★½	★★★★☆	★★★★☆
OS (out of box)	Android 5.0.2 Lollipop	Android 5.0 Lollipop	Android 5.0.2 Lollipop	Cyanogen OS	Android 5.0 Lollipop
Processor	2.5GHz Snapdragon 615	1.2GHz Snapdragon 410	1.2GHz Snapdragon 410	1.2GHz Snapdragon 410	1.2GHz
RAM	2GB	1GB	1GB	2GB	1GB
Storage	16GB	8GB	8GB	16GB	8GB
MicroSD support	Up to 128GB	Up to 32GB	Up to 64GB	Up to 32GB	Not specified
Graphics	Adreno 405	Adreno 306	Adreno 306	Adreno 306	Not specified
Screen size	5.5in	4.5in	5in	5in	4.7in
Screen resolution	1920x1080	540x960	720x1280	1280x720	720x1280
Pixel density	401ppi	245ppi	294ppi	294ppi	312ppi
Screen technology	IPS	IPS	IPS	IPS	IPS
Front camera	5Mp	0.3Mp	2Mp	5Mp	2Mp
Rear camera	13Mp	5Mp	8Mp	13Mp, LED flash	8Mp, LED flash
Video recording	1080p	720p	1080p	1080p	720p
Cellular connectivity	4G*	4G	4G*	4G	4G
SIM type	Nano-SIM	Micro-SIM	Micro-SIM	Micro-SIM	Micro-SIM
Dual-SIM as standard	✗	✗	✗	✗	✗
Wi-Fi	802.11b/g/n	802.11b/g/n	802.11b/g/n	802.11b/g/n	802.11b/g/n
Bluetooth	Bluetooth 4.0	Bluetooth 4.0	Bluetooth 4.0	Bluetooth 4.0	Bluetooth 4.0
GPS	GPS, A-GPS	GPS, A-GPS, Glonass	A-GPS	A-GPS	A-GPS, Glonass
NFC	✓	✗	✗	✗	✗
USB OTG	✗	✗	✓	✓	✓
Extra features	FM radio	Double-twist launches camera, lockscreen alerts	FM radio	3D G-Sensor,	Wi-Fi calling
Geekbench 3.0 (single)	649	464	464	Not tested	Not tested
Geekbench 3.0 (multi)	2469	1463	1401	1456	1549
SunSpider	1545ms	1301ms	1301ms	1760ms	1880ms
GFXBench: T-Rex	14fps	13fps	9.4fps	10fps	10fps
GFXBench: Manhattan	5.7fps	6fps	3.8fps	4fps	4fps
Battery	3000mAh, non-removable	2390mAh, non-removable	Not specified	2500mAh, removable	2000mAh, non-removable
Dimensions	154x77x9mm	66.8x5.2-12.3x129.9mm	141.65x71.89x9mm	141x71x9.4mm	138x67.9x9.5mm
Weight	159g	145g	155g	135g	124g
Warranty	1 year	1 year	1 year	1 year	1 year
FULL REVIEW	TINYURL.COM/Q7Q9NXR	TINYURL.COM/Q7Q9NXR	TINYURL.COM/Q5DSNHE	TINYURL.COM/PO9KG38	TINYURL.COM/PXTROH4

* Locked to Vodafone. All other models here are unlocked

Best phablets	1 Samsung Galaxy Note5	2 Samsung Galaxy Note 4	3 LG G4	4 LG G3	5 OnePlus 2
Price	£600 inc VAT	£599 inc VAT	£500 inc VAT	£479 inc VAT	£239 inc VAT
Website	Samsung Galaxy Note 5	Samsung.com/uk	Lg.com/uk	Lg.com/uk	Oneplus.net
Build rating	★★★★½	★★★★☆	★★★★☆	★★★★½	★★★★☆
Features rating	★★★★☆	★★★★½	★★★★☆	★★★★½	★★★★☆
Performance rating	★★★★½	★★★★☆	★★★★☆	★★★★½	★★★★☆
Value rating	★★★★☆	★★★★☆	★★★★½	★★★★½	★★★★★
Overall rating	★★★★½	★★★★☆	★★★★☆	★★★★½	★★★★☆
OS (out of box)	Android 5.1.1 Lollipop	Android 4.4 KitKat	Android 5.1 Lollipop	Android 4.4 KitKat	OxygenOS 2.0 (Android 5.1)
Processor	2.1GHz Exynos 7420	2.7GHz Snapdragon 805	1.82GHz Snapdragon 808	2.5GHz Snapdragon 801	1.8GHz Snapdragon 801
RAM	4GB	3GB	3GB	2GB/3GB	3/4GB
Storage	32/64GB	32GB	32GB	16GB/32GB	16GB/64GB
MicroSD support	✗	Up to 128GB	Up to 128GB	✗	✗
Graphics	Mali-T760MP8	Adreno 420	Adreno 418	Adreno 330	Adreno 430
Screen size	5.7in	5.7in	5.5in	5.5in	5.5in
Screen resolution	720x1280	1440x2560	1440x2560	1440x2560	1920x1080
Pixel density	518ppi	515ppi	538ppi	534ppi	401ppi
Screen technology	Super AMOLED	Super AMOLED	IPS	IPS	IPS
Front camera	5Mp	3.7Mp	8Mp	2Mp	5Mp
Rear camera	16Mp, LED flash	16Mp, LED flash	16Mp, LED flash	13Mp, LED flash	13Mp, Dual-LED flash
Video recording	4K	4K	4K	4K	4K
Cellular connectivity	4G	4G	4G	4G	4G
SIM type	Nano-SIM	Micro-SIM	Micro-SIM	Micro-SIM	Dual-SIM
Dual-SIM as standard	✗	✗	✗	✗	Yes
Wi-Fi	802.11a/b/g/n/ac, dual-band	802.11a/b/g/n/ac, dual-band	802.11a/b/g/n/ac, dual-band	802.11a/b/g/n/ac, dual-band	802.11ac, dual-band
Bluetooth	Bluetooth 4.2	Bluetooth 4.1	Bluetooth 4.0	Bluetooth 4.0 (aptX)	Bluetooth 4.0
GPS	A-GPS, Glonass	GPS, Glonass	A-GPS, Glonass	A-GPS, Glonass	GPS, Glonass
NFC	✓	✓	✓	✓	✗
USB OTG	✓	✓	✓	✓	✓
Extra features	Heart-rate sensor, fingerprint scanner	Fingerprint, UV, heart-rate sensors, S Pen stylus	24bit/192kHz audio, rear key, IR blaster	24bit/192kHz audio, rear key	None
Geekbench 3.0 (single)	1497	Not tested	Not tested	Not tested	Not tested
Geekbench 3.0 (multi)	Not tested	3272	3513	2465	4094
SunSpider	718ms	1367ms	715ms	959ms	1471ms
GFXBench: T-Rex	37fps	27fps	25fps	20fps	46fps
GFXBench: Manhattan	15fps	11fps	9fps	Not tested	16fps
Battery	23000mAh, non-removable	3220mAh, removable	3000mAh, removable, Qi	3000mAh, removable, Qi	3300mAh, non-removable
Dimensions	153.2x76.1x7.6mm	78.6x153.5x8.5mm	76x149x6.3-9.8mm	75x146x8.9mm	151.8x74.9x9.9mm
Weight	171g	176g	155g	149g	175g
Warranty	1 year	2 years	1 year	1 year	1 year
FULL REVIEW	TINYURL.COM/OCQAJPL	TINYURL.COM/PNHJCZ4	TINYURL.COM/QDGU48T	TINYURL.COM/OA76T73	TINYURL.COM/NSGEV3U

Best 7- & 8in tablets	1 Google Nexus 7	2 Samsung Galaxy Tab S 8.4	3 Sony Xperia Z3 Tablet Compact	4 Apple iPad mini 2	5 Google Nexus 9
Price	£199 inc VAT	£319 inc VAT	£299 inc VAT	£219 inc VAT	£299 inc VAT
Website	Play.google.com	Samsung.com/uk	Sony.co.uk	Apple.com/uk	Google.co.uk
Build rating	★★★★☆	★★★★☆	★★★★☆	★★★★½	★★★½☆
Features rating	★★★★½	★★★★½	★★★★½	★★★★☆	★★★★☆
Performance rating	★★★★½	★★★★½	★★★★½	★★★★½	★★★★½
Value rating	★★★★½	★★★★½	★★★★☆	★★★★☆	★★★★☆
Overall rating	★★★★½	★★★★½	★★★★½	★★★★½	★★★★☆
OS (out of box)	Android 4.3 Jelly Bean	Android 4.4 KitKat	Android 4.4 KitKat	iOS 9	Android 5.0 Lollipop
Processor	1.5GHz Snapdragon S4 Pro	Exynos 5420, octa-core	2.5GHz Snapdragon 801	Apple A7, Apple M7	2.3GHz nVidia Tegra K1
RAM	2GB	3GB	3GB	1GB	2GB
Storage	16GB/32GB	16GB/32GB	16GB/32GB	16GB/32GB	16GB/32GB
MicroSD support	✗	Up to 128GB	Up to 128GB	✗	No
Graphics	Adreno 320	ARM Mali-T628 MP6	Adreno 330	Apple A7	192-core Kepler
Screen size	7in	8.4in	8in	7.9in	8.9in
Screen resolution	1920x1200	2560x1440	1920x1200	2048x1536	2048x1536
Pixel density	323ppi	359ppi	283ppi	326ppi	287ppi
Screen technology	IPS	Super AMOLED	IPS	IPS	IPS
Front camera	1.2Mp	2.1Mp	2.2Mp	1.2Mp	1.6Mp
Rear camera	5Mp	8Mp, LED flash	8.1Mp	5Mp	8Mp, LED flash
Video recording	1080p	1080p	1080p	7200p	1080p
Cellular connectivity	4G version available	4G version available	4G version available	4G version available	4G version available
Wi-Fi	802.11b/g/n, dual-band	802.11a/b/g/n/ac, dual-band	802.11a/b/g/n/ac, dual-band	802.11a/b/g/n, dual-band	802.11a/b/g/n/ac, dual-band
Bluetooth	Bluetooth 4.0	Bluetooth 4.0	Bluetooth 4.0	Bluetooth 4.0	Bluetooth 4.1
GPS	GPS, Glonass	GPS, Glonass	A-GPS, Glonass	A-GPS, Glonass	GPS, Glonass
NFC	✓	✗	✓	✗	Yes
USB OTG	✓	✓	✓	✗	Yes
Fingerprint scanner	✗	✓	✗	✗	No
Waterproof	✗	✗	✓	✗	No
Extra features	None	Stereo speakers	PS4 Remote Play, stereo speakers	None	BoomSound speakers
Geekbench 3.0 (single)	Not tested	Not tested	Not tested	Not tested	1904
Geekbench 3.0 (multi)	Not tested	2765	2708	Not tested	3352
SunSpider	1136ms	1089ms	1017ms	397ms	955ms
GFXBench: T-Rex	Not tested	14fps	28fps	Not tested	48fps
GFXBench: Manhattan	Not tested	3fps	11fps	Not tested	22fps
Battery	3950mAh, non-removable, Qi	4900mAh, non-removable	4500mAh, non-removable	6470mAh, non-removable	6700mAh, non-removable
Dimensions	200x114x8.65mm	126x213x6.6mm	213x124x6.4mm	200x134.7x7.5mm	153.7x228.3x8mm
Weight	299g	294g	270g	331g	425g
Warranty	1 year	1 year	1 year	1 year	1 year
FULL REVIEW	TINYURL.COM/PUJDJBY	TINYURL.COM/OUEM64Z	TINYURL.COM/NJ6VHEO	TINYURL.COM/PCJPB5L	TINYURL.COM/NQ6K77Y

Best 9- & 10in tablets

	1 Apple iPad Air 2	2 Samsung Galaxy Tab S 10.5	3 Sony Xperia Z2 Tablet	4 Apple iPad Air	5 Google Nexus 10
Price	£399 inc VAT	£399 inc VAT	£369 inc VAT	£319 inc VAT	£389 inc VAT
Website	Apple.com/uk	Samsung.com/uk	Sony.co.uk	Apple.com/uk	Play.google.com
Build rating	★★★★★	★★★★☆	★★★★⯪	★★★★☆	★★★★⯪
Features rating	★★★★⯪	★★★★⯪	★★★★⯪	★★★★⯪	★★★★⯪
Performance rating	★★★★⯪	★★★★⯪	★★★★⯪	★★★★⯪	★★★★⯪
Value rating	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★⯪
Overall rating	★★★★⯪	★★★★⯪	★★★★⯪	★★★★☆	★★★★⯪
OS (out of box)	iOS 8.2	Android 4.4 KitKat	Android 4.4 KitKat	iOS 8.2	Android 4.2 Jelly Bean
Processor	Apple A8X, Apple M8	Exynos 5420, octa-core	2.3GHz Snapdragon 801	Apple A7, Apple M7	1.7GHz Exynos 5250
RAM	2GB	3GB	3GB	1GB	2GB
Storage	16GB/64GB/128GB	16GB/32GB	16GB	16GB/32GB	16GB/32GB
MicroSD support	No	Up to 128GB	Up to 64GB	No	No
Graphics	Apple A8X	ARM Mali-T628 MP6	Adreno 330	Apple A7	ARM Mali T604
Screen size	9.7in	10.5in	10.1in	9.7in	10.1in
Screen resolution	2048x1536	2560x1600	1920x1200	2048x1536	2560x1600
Pixel density	264ppi	288ppi	224ppi	264ppi	300ppi
Screen technology	IPS	Super AMOLED	IPS	IPS	IPS
Front camera	1.2Mp	2.1Mp	2.2Mp	1.2Mp	1.9Mp
Rear camera	8Mp	8Mp, LED flash	8.1Mp	5Mp	5Mp, LED flash
Video recording	1080p	1080p	1080p	1080p	1080p
Cellular connectivity	4G version available	4G version available	4G version available	4G version available	No
Wi-Fi	802.11a/b/g/n/ac, dual-band	802.11a/b/g/n/ac, dual-band	802.11a/b/g/n/ac, dual-band	802.11a/b/g/n, dual-band	802.11b/g/n, dual-band
Bluetooth	Bluetooth 4.0	Bluetooth 4.0	Bluetooth 4.0	Bluetooth 4.0	Bluetooth 4.0
GPS	A-GPS, Glonass	GPS, Glonass	GPS, Glonass	A-GPS, Glonass	GPS, Glonass
NFC	Yes (for Apple Pay)	No	Yes	No	Yes
USB OTG	✘	Yes	Yes	No	Yes
Fingerprint scanner	✓	Yes	No	No	No
Waterproof	✘	No	Yes	No	No
Extra features	None	Stereo speakers	PlayStation certified	None	None
Geekbench 3.0 (single)	1816	Not tested	967	1487	Not tested
Geekbench 3.0 (multi)	4523	2769	2719	2703	Not tested
SunSpider	Not tested	1079ms	1099ms	400ms	1329ms
GFXBench: T-Rex	48fps	14fps	27fps	23fps	Not tested
GFXBench: Manhattan	Not tested	3fps	Not tested	Not tested	Not tested
Battery	7340mAh, non-removable	7900mAh, non-removable	6000mAh, non-removable	8600mAh, non-removable	9000mAh, non-removable
Dimensions	240x169.5x6.1mm	247x177x6.6mm	266x172x6.4mm	240x169x7.5mm	264x178x8.9mm
Weight	437g	465g	439g	469g	603g
Warranty	1 year	1 year	1 year	1 year	1 year
FULL REVIEW	TINYURL.COM/PLQXWSZ	TINYURL.COM/OESDFZQ	TINYURL.COM/M8BZZUN	TINYURL.COM/NVOOF6H	TINYURL.COM/PUAG9RN

Best smartwatches	**1** LG G Watch R	**2** Huawei Watch	**3** Motorola Moto 360	**4** Sony Smartwatch 3	**5** LG Watch Urbane
Price	£195 inc VAT	£289 inc VAT	£199 inc VAT	£189 inc VAT	£259 inc VAT
Website	Lg.com/uk	Consumer.huawei.com/en	Motorola.co.uk	Sony.co.uk	Lg.com/uk
Overall rating	★★★★½	★★★★☆	★★★★½	★★★½☆	★★★★☆
Operating system	Android Wear	Android Wear	Android Wear	Android Wear	Android Wear
Compatibility	Android	Android	Android	Android	Android
Display	1.3in 320x320 P-OLED	1.4in 400x400 AMOLED	1.56in 290x320 LCD	1.6in 320x320 LCD	1.3in 320x320 P-OLED
Processor	1.2GHz Snapdrgon 400	Snapdragon 400	TI OMAP 3	1.2GHz ARM V7	1.2GHz Snapdragon 400
RAM	512MB	512MB	512MB	512MB	512MB
Storage	4GB	4GB	4GB	4GB	4GB
Waterproof	Yes	Yes	Yes	Yes	Yes
Battery	410mAh	300mAh	320mAh	420mAh	410mAh
Dimensions	46.4x53.6x9.7mm	42x11.3mm	46x11.5mm	36x51x10mm	46x52x10.9mm
Weight	62g	40g	49g (leather band model)	45g	67g
Warranty	1 year	1 year	1 year	1 year	1 year
FULL REVIEW	TINYURL.COM/QATY8FT	TINYURL.COM/PXV9PVX	TINYURL.COM/O9C69K6	TINYURL.COM/OQVZ3PN	TINYURL.COM/Q3VK7ES

Best smartwatches	**6** Asus ZenWatch	**7** Apple Watch	**8** Pebble Steel	**9** LG G Watch	**10** Sony Smartwatch 2
Price	£199 inc VAT	£299 inc VAT	£179 inc VAT	£159 inc VAT	£125 inc VAT
Website	Uk.asus.com	Apple.com/uk	Getpebble.com	Lg.com/uk	Sony.co.uk
Overall rating	★★★½☆	★★★☆☆	★★★★☆	★★★★☆	★★★★☆
Operating system	Android Wear	watchOS	Proprietary	Android Wear	Proprietary
Compatibility	Android	iOS	iOS, Android	Android	Android
Display	1.6in 320x320 AMOLED	1.32in 340x312 Ion-X Glass	1.26in 144x168 E-Paper	1.65in 280x280 IPS	1.6in 220x176 LCD
Processor	1.2GHz Snapdragon 400	Apple S1	Not specified	1.2GHz Snapdragon 400	Not specified
RAM	512MB	512MB	512MB	512MB	Not specified
Storage	4GB	8GB	Not specified	4GB	Not specified
Waterproof	Yes	Yes	Yes	Yes	Yes
Battery	1.4Wh	Not specified	130mAh	400mAh	Not specified
Dimensions	51x39.9x7.9-9.4mm	38.6x33.3x10.5mm	46x34x10.5mm	37.9x46.5x9.95mm	42x41x9mm
Weight	75g	72g	156g	63g	123g
Warranty	1 year	1 year	1 year	1 year	1 year
FULL REVIEW	TINYURL.COM/NN7GA7W	TINYURL.COM/OUTH9XK	TINYURL.COM/PPBXV7J	TINYURL.COM/Q84WL6L	TINYURL.COM/P4X7AZM

Best activity trackers

	1	2	3	4	5
	Fitbit Charge HR	**Fitbit Surge**	**Fitbit One**	**Microsoft Band**	**Fitbit Charge**
Price	**£119 inc VAT**	**£199 inc VAT**	**£79 inc VAT**	**£169 inc VAT**	**£99 inc VAT**
Website	Fitbit.com/uk	Fitbit.com/uk	Fitbit.com/uk	Microsoft.com/en-gb	Fitbit.com/uk
Overall rating	★★★★☆	★★★★☆	★★★★☆	★★★☆☆	★★★★☆
Compatibility	iOS, Android, Windows	iOS, Android, Windows	iOS, Android	iOS, Android, Windows	iOS, Android, Windows
Display	OLED	Touchscreen	OLED	TFT	OLED
Pedometer	Yes	Yes	Yes	Yes	Yes
Heart-rate monitor	Yes	Yes	No	Yes	No
Sleep tracking	Yes	Yes	Yes	Yes	Yes
Alarm	Yes	Yes	Yes	Yes	Yes
Third-party app synching	Yes	Yes	Yes	Yes	Yes
Call notifications	Yes	Yes	No	Yes	Yes
Waterproof	Yes	Yes	No	Yes	Yes
Battery life	5+ days	5 days	10-14 days	2 days	7-10 days
Dimensions, weight	21.1mm, 26g	34mm, 51g	35.5x28x9.65mm, 8g	11x33mm, 60g	21.1mm, 24g
FULL REVIEW	TINYURL.COM/PCKV4SU	TINYURL.COM/O83DR47	TINYURL.COM/PT2TC6F	TINYURL.COM/LHMQ2AC	TINYURL.COM/PFMQ9KH

Best activity trackers

	6	7	8	9	10
	Basis Peak	**Xiaomi Mi Band**	**Jawbone Up 2**	**Jawbone Up Move**	**Jawbone Up24**
Price	**£169 inc VAT**	**£29 inc VAT**	**£89 inc VAT**	**£39 inc VAT**	**£99 inc VAT**
Website	En-gb.mybasis.com	Mobilefun.co.uk	Jawbone.com	Jawbone.com	Jawbone.com
Overall rating	★★★☆☆	★★★★☆	★★★★☆	★★★★☆	★★★☆☆
Compatibility	iOS, Android	iOS, Android	iOS, Android	iOS, Android	iOS, Android
Display	E-Ink	No	No	No	No
Pedometer	Yes	Yes	Yes	Yes	Yes
Heart-rate monitor	Yes	No	No	No	No
Sleep tracking	Yes	Yes	Yes	Yes	Yes
Alarm	No	Yes	Yes	No	Yes
Third-party app synching	No	No	Yes	Yes	Yes
Call notifications	Yes	Yes	No	No	No
Waterproof	Yes	Yes	Splashproof	Splashproof	Splashproof
Battery life	4 days	30 days	7 days	Six months, non-rechargable	7 days
Dimensions, weight	33x43x10mm, 51g	157-205mm, 13g	220x11.5x3-8.5mm, 25g	27.6x27.6x9.8mm, 6.8g	S: 19g, M: 22g, L: 23g
FULL REVIEW	TINYURL.COM/LHMQ2AC	TINYURL.COM/QZ3YVCR	TINYURL.COM/PHT98ZK	TINYURL.COM/PFXQFNE	TINYURL.COM/NDBYMB8

Best power banks	Zendure A2 (2nd gen)	Xiaomi 10,000mAh	Maximas XTRON USB-C	iHarbot Power Bank MS024	Anker Astro Mini
	1	**2**	**3**	**4**	**5**
Price	£25 inc VAT	£11 inc VAT	$69 (£45)	£7.50 inc VAT	£13 inc VAT
Website	Zendure.com	Mi.com/en	Indiegogo.com	Amazon.co.uk	Ianker.com
Overall rating	★★★★½	★★★★½	★★★★½	★★★★½	★★★★½
Capacity	6700mAh	10,000mAh	13,400mAh	5000mAh	3200mAh
Input	1x 7.5W Micro-USB	1x 10W Micro-USB	1x 10W Micro-USB	1x 10.5W Micro-USB	1x 4W Micro-USB
Outputs	1x 10.5W USB	1x 10.5W USB	1x 21W USB	1x 10W USB	1x 5W USB
Auto-on/-off	Yes	Yes	No	Auto-on	No
Passthrough charging	Yes	Yes	No	Yes	No
Status indicator	4 LEDs	4 LEDs	4 LEDs	4 LEDs	No
LED flashlight	No	No	No	No	No
Carry case	Yes	No	No	No	Yes
Dimensions	93x48x23mm	91x60.4x22mm	77x21x93mm	118x11.6x63mm	92x23x23mm
Weight	137g	207g	247g	150g	80g
Warranty	1 year	1 year	Not specified	18 months	18 months
FULL REVIEW	TINYURL.COM/NGCNO5F	TINYURL.COM/NFQZOCB	TINYURL.COM/PVO2LEC	TINYURL.COM/PVO2LEC	TINYURL.COM/PZHUHJO

Best desktop chargers		CHOEtech 6-port Charger	Aukey USB Charging Station	iClever USB Travel Charger	Zendure Turbo Charger	Olixar Smart IC Charger
		1	**2**	**3**	**4**	**5**
Price		£25 inc VAT	£17 inc VAT	£20 inc VAT	£25 inc VAT	£34 inc VAT
Website		Choetech.com	Hisgadget.com	Hisgadget.com	Zendure.com	Mobilefun.co.uk
Overall rating		★★★★½	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Max output		60W	54W	50W	40W	50W
Outputs:	USB 1	15W USB	9W USB	12W USB	12W USB	12.5W USB
	USB 2	15W USB	9W USB	12W USB	12W USB	12.5W USB
	USB 3	15W USB	9W USB	12W USB	12W USB	12.5W USB
	USB 4	15W USB	9W USB	12W USB	12W USB	12.5W USB
	USB 5	12W USB	18W USB	12W USB	12W USB	12.5W USB
	USB 6	15W USB	N/A	12W USB	N/A	12.5W USB
Colours available		Black	Black	Black	Black, white	White
Dimensions		71.5x29x88.4mm	94x60x25mm	100x69x27mm	97x60x27mm	100x69x26mm
Weight		158g	149g	180g	166g	189g
Warranty		1 year	1 year	1 year	1 year	2 years
FULL REVIEW		TINYURL.COM/QG4X5D9	TINYURL.COM/P2CZMCU	TINYURL.COM/MPA4DWC	TINYURL.COM/NKYNJ7P	TINYURL.COM/OCZXK93